

PUBLIC MEETING  
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JUNE 8, 1994  
6:30 p.m.

MODERATOR

Nolan Jensen, Department of Energy

TEST AREA NORTH GROUNDWATER CONTAMINATION  
OPERABLE UNIT 1-07B

Presenters:  
Dan Harelson, DOE-Idaho  
Greg Stromberg, EG&G

TRACK 1 INVESTIGATION AT TEST AREA NORTH  
OPERABLE UNITS 1-01, 02, 06, 09

Presenters:  
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(1) MR. JENSEN: Okay. My name is Nolan (2) Jensen. I work for the Department of Energy in (3) Idaho Falls and I'll be acting as kind of a (4) moderator tonight. I'd like to welcome you all (5) here.

(6) A couple of purposes for our meeting (7) tonight, of course, is here on this chart, really (8) two basic reasons. One is to give you (9) information, answer questions, talk about any (10) concerns you might have, and then the other is to (11) receive your comments if you have any comments (12) tonight on the plans that we have.

(13) Before we get going, though, Rick is (14) at the back of the room. Rick Tromblay manages (15) the INEL office here in town and I'll just give (16) him a minute to introduce himself.

(17) MR. TROMBLAY: Good evening, (18) everybody. I'd like to extend a warm welcome to (19) all of you, those who came up from the INEL as (20) well as those who came in from town and some of (21) you came from the area but out of town.

(22) I'm Rick Tromblay, I'm with the INEL (23) Boise office, and I know most of you. I know (24) Helen, Fritz, Joe, Kathy is over there.

(25) I would like to let you know that a

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(1) lot of the information in detail is stored at our (2) office on 816 West Bannock on the third floor. (3) All of these project people keep us well up to (4) date with information on the current status of (5) different cleanup sites, so that if you want to (6) continue to follow what's going on with Test Area (7) North or any of the other areas insofar as (8) cleanup or other initiatives, don't hesitate to (9) come up to the office and pay us a visit. Again, (10) we're at 816

West Bannock on the third floor and (11) my phone number is 334-9572. And I'd like to (12) once again thank you all for coming and thanks so (13) much for your interest.

(14) MR. JENSEN: Thanks, Rick. Really (15) what we do is descend upon his office unannounced (16) and use up all his space.

(17) Okay. A couple of things I want to (18) talk about before we get into the meeting, and (19) that's just a real brief update of where the (20) Environmental Restoration program at INEL is.

(21) We're about three years into the (22) Federal Facility Agreement that we signed with (23) EPA and the State of Idaho. We have (24) representatives from both of those agencies here (25) tonight and they'll talk in a few minutes. But

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(1) in those three years, we have completed nine (2) Records of Decision and we have two more that are (3) very near completion. We did a public meeting a (4) couple of months ago here, and so those will be (5) coming up soon, and then this project will be (6) Record of Decision Number 12, so we're real (7) pleased with that.

(8) We met 27 of our enforceable deadlines (9) so far, and we've only had 27, so we've met all (10) those. We're accelerating several projects, (11) we've completed a couple of interim action (12) cleanups, one of those was the TRA Warm Waste (13) Pond. We came up with a public comment period on (14) that a couple of years ago.

(15) And then some unexploded ordnance, (16) that project, the first phase was completed. So (17) things are moving along and we're real happy (18) about that.

(19) Tonight we're going to be talking (20) about Test Area North, or TAN, as we commonly (21) refer to it. And the proposed plan, if you'll (22) notice, has two general parts, and we'll be kind (23) of dividing the meeting into two separate (24) meetings almost.

(25) The first part, we'll be talking about

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(1) TAN groundwater contamination, and then we'll be (2) talking about several preliminary investigations (3) that we call Track 1s. And this charter up here (4) is intended to give you a little bit of a feel

of (5) how things are organized.

(6) At the INEL there are ten Waste Area (7) Groups. Test Area North is Waste Area Group 1. (8) And basically the Waste Area Groups correspond to (9) that facilities across the desert. And each of (10) those Waste Area Groups are divided into what we (11) call Operable Units, and then the Operable Units (12) are divided into other sites, individual sites, (13) and we kind of group them together in like (14) problems.

(15) Well, in WAG 1, Waste Area Group 1, (16) which is TAN, which we're talking about tonight, (17) this is the project that we'll be talking about (18) for the most part, the TAN groundwater, it's (19) closely related to an injection well interim (20) action. That action is already ongoing. In (21) fact, this injection well is the source of the (22) contamination that we'll be talking about tonight (23) and there is - we're pumping water out of that (24) well now and treating it, and Dan Harelson will (25) talk to you about that in a few minutes.

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(1) And then we'll also be talking about (2) these Track 1 investigations. And they are (3) several smaller sites from some of the other (4) Operable Units that we've done investigations on, (5) so we'll be talking about those.

(6) So basically what we do is we have (7) several of these different sites, Operable Units, (8) that we are doing investigations on. After we do (9) all of that work, at the end, we'll kind of wrap (10) it all together in a big comprehensive (11) investigation, and that will basically do the job (12) of - since we've looked at them all individually (13) now, this investigation will look at them from (14) the big picture and see if there is some (15) cumulative comprehensive effects that we missed (16) or potentially didn't adequately evaluate when we (17) were looking at the sites just by themselves. So (18) that will be coming up starting in about a year (19) for Test Area North.

(20) So hopefully that will give you kind (21) of a feel for how things are organized and what (22) we'll be talking about tonight.

(23) Okay. One other thing I want to talk (24) about very briefly, and those of you who were at (25) our meetings a

couple of months ago will have

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(1) seen this already, but you have to bear with me, (2) and that's just to give you an introduction about (3) really what this is all about. And that is, (4) essentially what we are doing is looking at all (5) the sites that we've identified at INEL where (6) there could have been or where we know there has (7) been a release of a contaminant, a hazardous (8) contaminant. And the whole thing we're doing is (9) checking to find out what the contaminants are (10) and what kind of risks they pose.

(11) And so when we talk about risks, there (12) are two general types of risks that we do the (13) assessment on. One of those is carcinogenic (14) risk, or cancer-causing contaminants, and then (15) the other is the other contaminants that have any (16) other type of health effect, like organ damage or (17) birth defects, anything like that. And they're (18) expressed differently.

(19) For carcinogenic risk, we refer to (20) just that, to the risk of - to the potential (21) risk for contracting cancer. The Environmental (22) Protection Agency has set up a risk range that is (23) deemed to be acceptable, and that risk range is (24) between one and 10,000 and one and 1,000,000 (25) chances of cancer, chances of contracting cancer,

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(1) above the national average. So if we do the risk (2) assessment and find out that the risk falls (3) within or below that range, then it's deemed to (4) be acceptable and no cleanup is likely required.

(5) In the case of noncarcinogenic risk, (6) we refer to a hazard index. And what that hazard (7) index is, it's an evaluation of how likely or how (8) unlikely it is that exposure to that situation (9) will cause sensitive populations to have that (10) health effect. And if we're at a hazard index of (11) one or below, then we have a high degree of (12) certainty that even sensitive populations will (13) not have that health effect.

(14) As we get above one, then our comfort (15) level decreases and we may need to do cleanup, (16) but one and below, there's a high degree of (17) certainty that there is not a problem.

(18) So hopefully that will just give you a (19) brief introduction and we'll be referring to this (20) throughout the presentation tonight to give you (21) kind of a feel for what's going on.

(22) Okay. Just one last thing about the (23) meeting format and then I'll introduce our (24) presenters.

(25) Like I said, the meeting will be in

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(1) two parts. We'll talk about the TAN groundwater (2) first, and then we'll talk about these other (3) preliminary investigations. And so we'll have (4) about a 10- or 15-minute presentation, we'll (5) follow that with a question-and-answer period, (6) and then we'll follow that with a formal comment (7) period. And we have a court reporter here, so if (8) you'd like to give a comment, that can be taken (9) down.

(10) So I'll go ahead and introduce now (11) some of our associates.

(12) First of all, all of the work that we (13) do is under what's called our Federal Facility (14) Agreement and Consent Order. It's an agreement (15) that we signed with EPA and the State of Idaho to (16) do the cleanup work.

(17) And we have tonight with us Margie (18) English, who will talk to you. She's from the (19) Department of Health and Welfare here, Division (20) of Environmental Quality. And then after she (21) takes a minute, Matt Wilkening from EPA Region 10 (22) in Seattle will take just a minute.

(23) MS. ENGLISH: Thank you, Nolan.

(24) I am the Waste Area Group manager for (25) the State working with the Test Area North

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(1) project. And I'd also like to introduce to you a (2) couple other members our State team that are here (3) in Boise that are here tonight.

(4) We have Jeff Fromm, who is a (5) toxicologist, and he's helped us evaluate the (6) risk associated with these sites.

(7) Also we have Gary Winter, who is a (8) hydrogeologist, and he's helped us evaluate (9) groundwater concerns.

(10) And also is Dave Hovland. He is (11) here. He is a technical supervisor that has (12) helped me coordinate the reviews of these (13) projects over the years.

(14) So on behalf of myself and my (15) colleagues, I'd like to welcome you to this (16) meeting. We're really glad that you came out (17) tonight. The State does encourage the public (18) participation process and it's good to see - I (19) know a couple of you at least were here at our (20) meetings about a month and a half ago for the NRF (21) and RWMC project, and we're very glad to see your (22) continuing interest in the INEL projects.

(23) Tonight you will hear about a very (24) complex groundwater problem and one that's going (25) to be very difficult to solve. We have worked

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(1) over the past couple years with the DOE and the (2) EPA to evaluate the problem and to come up with (3) viable remedial alternatives, and it has not been (4) an easy process for a number of reasons, but we (5) believe that the preferred alternative that you (6) will hear about tonight is the best approach to (7) continue to address this problem.

(8) And as Nolan said, and it's stated (9) up here, the purpose of the meeting tonight is to (10) present the data about these sites and this (11) problem to you, to present the remedial (12) alternatives, give you a chance to ask questions (13) about them, and then to get your opinions about (14) the proposed remediation strategy.

(15) And any comments that you make, either (16) verbal or written, will then be used by us, the (17) three agencies, to determine the final remedial (18) decisions for the sites.

(19) So with that, once again I'd just like (20) to thank you for coming and encourage you to ask (21) any questions or offer any comments that you (22) might have.

(23) Thank you.

(24) MR. WILKENING: I'm the project (25) manager for the Environmental Protection Agency.

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(1) As you've heard, we've worked (2) cooperatively with the State and the Department (3) of Energy on this project, came up with a series (4) of alternatives, and selected one that we believe (5) is the best. EPA believe that the proposed (6) actions for Track 1s and the groundwater are (7) protective of human health and the environment

(8) and yet are cost-effective. And the preferred (9) alternative for the groundwater is also (10) consistent with the statutory requirement for (11) treatment to a maximum extent possible.

(12) However, these are just proposed (13) alternatives. We do request your comments and (14) questions regarding these, and we welcome them. (15) No alternative will be selected until we have (16) received all your comments and we have also given (17) them due consideration. And so we thank you for (18) coming here.

(19) Nolan?

(20) MR. JENSEN: Very quickly, by the way, (21) I see many you have gotten some of the (22) literature. This is the proposed plan. This is (23) a document that gives some of the background (24) about the projects that we'll be discussing (25) tonight.

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(1) And also, I forgot to mention, just (2) for a general overview of the cleanup program, (3) this Citizens' Guide was developed and gives kind (4) of a brief broad-brushed overview, so you're (5) welcome to take those.

(6) Also, Reuel asked me to thank those of (7) you who have already submitted written comments. (8) We have received some of those from you and (9) appreciate that.

(10) I'll go ahead and introduce our (11) presenters now. First, Dan Harelson from (12) Department of Energy will talk to us, and then (13) Greg Stormberg, who also worked on this project (14) as an investigator for EG&G, but I'll introduce (15) Dan now and we'll do the presentation.

(16) MR. HARELSON: As Nolan said, I'm Dan (17) Harelson. I'm the Waste Area Group manager for (18) the Test Area North and I work for the Department (19) of Energy.

(20) As I'm sure most of you are aware, the (21) Idaho National Engineering Laboratory is a (22) Department of Energy facility that's about 50 (23) miles west of Idaho Falls. The whole site covers (24) about 890 square miles. The majority of the work (25) and the facilities are in the southern portion of

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(1) the site. There is one facility called Test Area (2) North which is in the

northern part of the site. (3) It's about 28 miles north of the other (4) facilities.

(5) The general groundwater flow direction (6) is to the southwest. That's the Snake River (7) Plain Aquifer. At the Test Area North, there's a (8) little bit of a southeasterly component, but it (9) hooks around and follows the general flow (10) direction.

(11) Test Area North was initially (12) established to support the development of (13) nuclear-powered aircraft. This was done in the (14) 1950s and the very early 1960s. The program was (15) canceled in the early 1960s, and that was (16) followed by a couple of programs that did (17) research and development on nuclear energy, and (18) there are a couple of small programs going on (19) there now, but it is being gradually phased out (20) at the facility at that end of the site.

(21) There are four main facilities at the (22) Test Area North. The Technical Support Facility, (23) as the name implies, is support facilities that (24) includes maintenance shops, offices, the guard (25) house, the fire house is located there. Core

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(1) debris from the Three Mile Island reactor is also (2) being stored there. And there is a hot shop, (3) which is a large area where radioactive equipment (4) can be worked on.

(5) The Initial Engine Test Facility is (6) the test stand that was used for these (7) nuclear-powered aircraft engines. Those engines (8) are currently on display down at the Experimental (9) Breeder Reactor 1. This facility is not in use (10) at all now and it is gradually being dismantled.

(11) The Loss-of-Fluid Test Facility and (12) the Water Reactor Research Test Facility were (13) both built to support this research and (14) development on nuclear energy. Those programs (15) have been completed, were pretty well wound down (16) by the early 80s. Currently at the Loss-of-Fluid (17) Test Facility the Army is manufacturing advanced (18) armor for the M1-A1 tank. (19) There are a couple of small projects (20) going on at the Water Reactor Research Test (21) Facility. One of them is research on a bomb (22) detector for use in airports and that kind of (23) thing.

(24) This is a little bit closer view of (25) the Technical Support Facility. The injection

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(1) well that we are talking about is located right (2) about here. This is kind of looking up to the (3) north.

(4) The injection well is a 12-inch (5) diameter pipe that goes directly to the aquifer. (6) It was used from about 1955 through 1972 to (7) dispose of pretty much all of the wastewater that (8) was generated at the Test Area North. That is (9) everything from industrial and processed (10) wastewater to treated sanitary sewage effluent.

(11) The industrial and processed (12) wastewater has created a contaminant plume. The (13) most widespread contaminant is trichloroethylene, (14) which is also called trichloroethene, or TCE. It (15) extends in a plume that's about a mile and a half (16) long and roughly half a mile wide.

(17) The contamination was first discovered (18) in 1987 during routine drinking water (19) monitoring. We installed an air sparging system (20) to treat the drinking water and keep the (21) contamination levels below the federal drinking (22) water standard.

(23) In early 1990, the Department of (24) Energy went in and removed about 45 cubic feet of (25) sludge from the injection well itself. We

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(1) followed that in 1992 with a proposed plan for an (2) injection well interim action, and then also (3) scoping for this meeting, or for the (4) investigation that is the subject of this (5) meeting, which is the Remedial (6) Investigation/Feasibility Study.

(7) The injection well interim action (8) involves pumping and treating contaminated (9) groundwater directly from the injection well. (10) That effort began operation in mid-February. We (11) originally intended to pump at about 50 gallons a (12) minute continuously from the injection well. We (13) have not been able to get off to that good of a (14) start, or bad of a start, depending on how you (15) look at it. We have been finding contaminant (16) levels much higher than we anticipated, and also (17) different contamination than we anticipated. We (18) have been operating what's called a batch mode,

(19) which means we bring in about 15,000 gallons of (20) water at a time, treat it to meet federal (21) drinking water standards before it is discharged (22) to an existing pond. To date with that action we (23) have removed about 3,000 pounds of contaminants (24) from the aquifer.

(25) We're winding up the Remedial

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(1) Investigation/Feasibility Study. Greg Stormberg (2) is one of the principal investigators on that (3) study. He will describe what we learned from (4) that study, give you a list of the alternatives (5) or the types of alternatives that we looked at, (6) and then I will come back to describe the (7) alternatives that are in the proposed plan and (8) describe why we think the preferred alternatives (9) should be preferred.

(10) So with that, Greg?

(11) MR. STORMBERG: Good evening. As Dan (12) mentioned, what I'm going to try to do is present (13) the findings from the Remedial Investigation, and (14) then what I want to do after that is introduce (15) you to the types of technologies that we (16) considered for the groundwater problem and how we (17) refine that list of technologies down to a (18) smaller group that we then subject to a detailed (19) analysis and then ongoing into the selection of a (20) preferred alternative. (21) With respect to the Remedial (22) Investigation, there were two main objectives. (23) One is to define the nature and extent of (24) contamination or the types of contamination and (25) what's their distribution. And then secondly, we

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(1) use that information to evaluate the risk posed (2) by those contaminants. (3) With respect to the nature and extent, (4) as part of the Remedial Investigation, we (5) installed a number of groundwater monitoring (6) wells. There were quite a few monitoring wells (7) already present, but we went in and refined our (8) conceptual model of the plume itself with some (9) additional wells. We also collected several (10) rounds of groundwater samples and had them (11) analyzed for a number of analytes, the whole wide (12) range, in fact.

(13) And what we found is that we're

(14) basically dealing with seven contaminants that we (15) are concerned about, and they include both (16) volatile organics and radionuclides. The (17) volatile organics are TCE, dichloroethene and (18) tetrachloroethene. The radionuclides include (19) strontium-90, uranium-234, cesium-137 and (20) tritium.

(21) During one of the sampling events, we (22) also identified another radionuclide, and that (23) was americium-241 in the injection well itself, (24) but we only found it one time. With the (25) operation of the interim action, as Dan

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(1) mentioned, we found some other contaminants, and (2) probably the most notable is dichloropropane. (3) Again, it's a chlorinated volatile organic (4) compound.

(5) Okay. So basically what I'm trying to (6) say, with the additional types of constituents (7) that we're finding, we've got a dynamic system (8) and we need to keep an eye on it as we continue (9) with the interim action and as we get into the (10) remedial action phase for the Operable Unit 7B.

(11) As Dan mentioned, the most widespread (12) contaminant is TCE. The plume extends from the (13) Technical Support Facility, about a mile and a (14) half down the groundwater gradient to the Water (15) Reactor Research Test Facility here. It's about (16) a half mile wide.

(17) All of the other contaminants of (18) concern are less widely distributed. And (19) specifically, they would - they have only (20) extended a quarter to about a half a mile from (21) the injection well itself, so we use the TCE as (22) our base line plume for evaluating the site. (23) That basically shows you the (24) horizontal extent of contamination, but one of (25) the other questions that was important to address

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(1) was the vertical extent of contamination at TAN. (2) The system of subsurface at TAN consists of (3) basalt flows, numerous basalt flows that are (4) typically fractured, with sediments that have (5) been weighed down, we call these sedimentary (6) interbeds, here and here.

(7) The aquifer starts at about 200 feet

(8) below the land surface, and with the information (9) that we have in hand, the effective part of the (10) aquifer goes down to eight or 900 feet. So we (11) have an effective thickness of about seven or 800 (12) feet of aquifer, so it was important to determine (13) the vertical extent of this contamination.

(14) What we found as a result of the (15) drilling and sampling program is that this (16) interbed here, we call this the QR interbed, is (17) composed of silts and clays and some fine sands, (18) is 15 to 40 feet thick, and it's very (19) continuous.

(20) And this is fairly important with (21) respect to the migration of the contaminants, (22) because what we found with respect to groundwater (23) quality is that the groundwater above this (24) interbed is above drinking water standards for (25) most of the contaminants of concern that I listed

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(1) earlier, I mentioned earlier. However, the water (2) below this interbed is free of contaminants above (3) the federal drinking water standards. We have no (4) detection of contaminants above any of the (5) federal drinking water standards to date.

(6) The importance of this information is (7) that, as I mentioned, the effective part of the (8) aquifer may be upwards of seven, 800 feet thick, (9) and yet we are dealing with what we consider to (10) be a contaminated groundwater plume that may be (11) only 200 to 250 feet thick. What this does is it (12) limits substantially the amount of water that we (13) potentially have to treat. Okay. (14) One other point I'd like to make on (15) the nature and extent of contamination is the (16) source itself is an injection well. What we (17) found is that 20 years after operations at TAN (18) stopped (19) disposing of the contaminants to the well, we (20) still have the highest concentration of those (21) contaminants in the immediate vicinity of the (22) well. As we go away from this well, we see (23) marked decrease in the contaminant levels. Even (24) as far as only 100 feet away from the well, we (25) see very sharp drops in contaminant

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(1) concentration. What this tends to indicate is (2) that we are probably

dealing with residual (3) undissolved contamination that's trapped in (4) fractures and the flow tops of the rock matrix, (5) okay, which is continuing to feed the contaminant (6) plume itself. This also with, in addition to the (7) limited extent, the volume, this has important (8) implications with respect to the types of (9) technologies we're going to take a look at.

(10) With the nature and extent fairly well (11) defined, what we did next is take a look at the (12) risks posed by those contaminants. We basically (13) took a look at three different scenarios. (14) The first was what we call a current (15) industrial use scenario, where workers and (16) visitors are using water from the current (17) production well at TAN, they're located right (18) here at the northern edge of the plume, from the (19) present to about the year 2040. (20) We also took a look at two future (21) residential use scenarios, one where a future (22) resident can use contaminated water from anywhere (23) within the general groundwater plume, and then (24) the second future residential use scenario, we (25) isolated specifically on the use of water from

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(1) the injection well itself. We wanted to evaluate (2) the two of them.

(3) In all three cases, we evaluated (4) various exposure pathways, how those contaminants (5) are taken into the body. We evaluated the (6) inhalation of the volatiles, for example while (7) showering. We also evaluated the ingestion or (8) drinking of that groundwater. And then for the (9) future resident we included the ingestion of food (10) crops that may be irrigated with contaminated (11) water. Okay. (12) And what we found with respect to risk (13) is that under the current industrial use scenario (14) the total cancer risk to the workers and visitors (15) equated to one additional incidence of cancer in (16) about one million individuals. Okay. So using (17) the definitions that Nolan presented earlier, (18) we're below the acceptable risk range. We don't (19) have a risk that we know of to the current (20) worker.

(21) The noncarcinogenic hazard index (22) calculated at .003, so it's very, very low for (23) that aspect, meaning it's unlikely that those (24) sensitive

populations, young children, older (25) people, would be affected by any of the

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(1) contaminants.

(2) For the future residential use (3) scenario, where water is taken from anywhere (4) within the general groundwater plume, what we (5) found is that the total cancer risk equated to (6) three additional incidents of cancer per 100,000 (7) individuals. We're still within the acceptable (8) range defined by the EPA.

(9) The calculated hazard index fell at (10) about .8, again indicating that we're probably (11) not going to adversely affect those sensitive (12) populations. (13) On the other hand, when we take a look (14) at the use of the water from the injection well (15) itself what we found is that the total cancer (16) risk equated to three - two additional incidents (17) of cancer per 1,000 individuals. Okay. So we're (18) above the acceptable range as defined by the (19) EPA. And the noncarcinogenic hazard index was (20) calculated at 23, okay, so that the use of the (21) water from the injection well itself if it is not (22) remediated or cleaned up provides or poses an (23) unacceptable risk in the agency's mind.

(24) Okay. Well, knowing that we have a (25) risk that we need to evaluate and take care of,

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(1) the next step in the Remedial (2) Investigation/Feasibility Study process is to (3) generate a feasibility study. And the purpose of (4) the feasibility study is essentially threefold, (5) or there's three stages to it.

(6) You want to identify the range of (7) technologies that are available and potentially (8) viable for that site. In this case we're dealing (9) with groundwater, so we looked at groundwater (10) technology.

(11) Secondly, you take that whole range of (12) technologies and you screen them according to (13) criteria set forth by the EPA. And what that (14) screening does is allows you to narrow the list (15) of your alternatives down to let's say a handful (16) that you can then put to a very detailed (17) analysis, basically under a microscope, so that (18) you can get to a preferred alternative that has (19) potential

application at the site.

(20) You can look at the technologies for (21) groundwater in six general categories that we (22) call general response actions. Each of these (23) categories except the No Action category here, (24) there were typically several to quite a few (25) different technologies that may be applicable.

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(1) For example, institutional controls (2) include things such as alternative water supply, (3) deed restrictions, fencing, things of that (4) nature.

(5) Containment technologies include (6) things such as physical barriers, grout curtains (7) for example, sheet piling. There's also (8) hydraulic containment technologies where (9) basically you just circulate that contaminated (10) groundwater to prevent or minimize future (11) migration. (12) Under the collection and removal of (13) contaminants for groundwater technology, the most (14) widely used are extraction wells, where we pull (15) the contaminated groundwater out of the aquifer, (16) we treat it, and then we reinject it with the (17) injection wells or we put it in a pond and (18) dispose of it.

(19) Aboveground treatment technologies or (20) treatment response actions are typically (21) associated with the treatment of the waste (22) itself, of the contaminated media itself. We (23) could be dealing with things like air stripping, (24) carbon adsorption, UV oxidation, ion exchange, (25) things of that nature.

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(1) And then treatment in place, probably (2) the most common technologies associated with this (3) are bioremediation technologies.

(4) Basically, that just gave you some (5) examples of those types of technologies that we (6) took a look at for whether they can be (7) implemented and are they cost-effective and, you (8) know, are they going to be effective.

(9) We took the whole range of (10) technologies, then we screened them against (11) various criteria, as I said, that are set forth (12) by the EPA.

(13) Some of these criteria include: Does (14) a given technology protect human health and the (15) environment?

Does it comply with the federal and (16) state laws that are out there? Is it effective (17) both in the short-term and long-term? How easy (18) is it to implement? Some of them are more (19) difficult than others. Does it reduce (20) contamination, that could be toxicity or volume, (21) or does it reduce the mobility of those (22) contaminants? (23) We also look at cost. Two other (24) criteria that we also screen the technologies or (25) remedial alternatives are through public and

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(1) state acceptance. That's why we are here (2) tonight, to get your opinion on the (3) technologies.

(4) After we took the range of (5) technologies and screened them, we basically came (6) down to four remedial alternatives that we (7) considered viable, and from that we selected a (8) preferred alternative. And Dan will now give you (9) the specifics on those four alternatives.

(10) Thank you.

(11) MR. HARELSON: As Greg said, we went (12) through four or identified four alternatives that (13) are presented in the proposed plan.

(14) The first alternative is No Action.

(15) And just as the name says, we would not be doing (16) anything to try to clean up or contain the (17) contamination. The only thing that would be done (18) would be monitoring to keep track of the way the (19) contaminant plume changed.

(20) Under the Superfund law, this (21) alternative must be evaluated to provide a base (22) line that everything else can be compared (23) against.

(24) The second alternative that we looked (25) at was Limited Action. And this would involve

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(1) limiting people's access to that contaminated (2) water. And this could either be done through (3) physical means such as fences, or signs saying (4) "please don't put your well here," or it could (5) be done through administrative means such as deed (6) restrictions that said if you ever bought this (7) property you could not install a well into the (8) contaminated groundwater. It could also be (9) accomplished by installing a well to provide (10) alternative water well away from the contaminated (11)

groundwater.

(12) And again we would be monitoring the (13) change in the contaminant plume over time.

(14) AUDIENCE MEMBER: Question?

(15) MR. HARELSON: Sure.

(16) AUDIENCE MEMBER: On the figures at (17) the bottom, is that yearly, an annual cost, or -

(18) MR. HARELSON: No, it would be (19) amortized over 50 years, I believe, up to 2040.

(20) AUDIENCE MEMBER: So that would be the (21) total cost over the life of the project -

(22) MR. HARELSON: Right.

(23) AUDIENCE MEMBER: - yeah, over 50 (24) years?

(25) MR. HARELSON: Alternatives 3 and 4

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(1) are very similar.

(2) Alternative 3 is our preferred (3) alternative. It would involve three main (4) pieces.

(5) The first piece would be continuation (6) of this interim action that we've spoken about.

(7) The second piece would be an attempt (8) to remediate that hotspot, is what we call it, in (9) the immediate vicinity of the injection well, (10) where we think there is still this residual (11) undissolved contamination.

(12) And then the third piece would be (13) extraction of a portion of the contaminated (14) groundwater plume where we have dissolved (15) contaminants.

(16) The interim action would be continued (17) for two years, and during that period we would be (18) designing and constructing this enhanced (19) remediation facility for the hotspot.

(20) The continuation of the interim action (21) would allow us to keep removing contamination (22) while we're designing and constructing the second (23) phase. It would also provide some limited (24) measure of hydraulic containment. By sucking (25) contaminated water back out of the injection

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(1) well, it would keep it from spreading as quickly (2) as it is.

(3) The second piece would use what's (4) called an enhanced remediation technology. We (5) are

looking at surfactant-enhanced and (6) steam-enhanced technologies.

(7) What a surfactant-enhanced (8) technology uses is a surfactant, or basically a (9) soap that would be injected around the injection (10) well and then pulled back out. The soap or (11) surfactant would improve the removal of (12) contaminant. The contaminated water would then (13) be treated, and then water that would meet (14) drinking water standards would be reinjected.

(15) Steam-enhanced remediation would (16) involve the same kind of process except (17) high-pressure steam would be injected and the (18) steam would help strip the contaminants away from (19) the aquifer. (20) The third piece of the preferred (21) alternative would involve remediation of the (22) portion of the plume that is contaminated above (23) 5,000 parts per billion of trichloroethylene. (24) And that is a fairly small piece of this (25) contaminant plume.

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(1) Alternative 4 is identical to (2) Alternative 3, except for the third piece, which (3) would attempt to address this much larger portion (4) of the contamination.

(5) With Alternative 4, in theory, if this (6) portion of the plume were remediated, the entire (7) contaminant plume would be below federal drinking (8) water standards by the year 2040, which is (9) projected when the area would be available for (10) other uses outside of DOE.

(11) We would be on Alternative 3 operating (12) for five to eight years. We would be looking to (13) ten to 40 years on Alternative 4. There's quite (14) a cost differential there.

(15) Alternative 3 is our preferred (16) alternative, even though it does not address the (17) entire contaminant plume.

(18) Alternative 3 focuses on the source. (19) The remainder of the plume would be addressed (20) under the WAG-wide and an INEL-wide comprehensive (21) RI/FS. By focusing on the source, we are (22) directing our resources at the worst part of the (23) problem. We will be learning about the best way (24) to approach this problem. (25) By deferring the cleanup of this



wider

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(1) portion of the plume to these subsequent (2) investigations, we hope to take these lessons and (3) reduce overall costs and still reduce (4) contamination.

(5) So with that, I'll turn it over to (6) Nolan.

(7) MR. JENSEN: Thanks, Dan. That (8) concludes the formal presentation part, but we'll (9) go into a question-and-answer part now and we (10) will have Dan and Greg come back up here and (11) answer any questions that you have.

(12) Just ask you, out of experience that (13) we've had, if you have comments, save those for (14) the comment part and keep the question and answer (15) period right now and when we - what happens is (16) after we get comments and we go to the Record of (17) Decision, there will be a written response to (18) each of those comments. And so we like to make (19) sure we keep those comments as pure as we can so (20) that we respond to them appropriately. But keep (21) it informal if we can and go ahead and ask any (22) questions you've got.

(23) AUDIENCE MEMBER: Well, couple of (24) questions.

(25) One, early on you had mentioned

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(1) 50-gallon-per-minute pump-and-treat target rate. (2) You're saying now that what you're doing is more (3) of a batch type of -

(4) MR. HARELSON: That's correct.

(5) AUDIENCE MEMBER: Okay. What does (6) that work out to? I mean, how close is that to (7) your 50-gallon-per-minute -

(8) MR. HARELSON: What has happened is we (9) designed - we took some sample from the (10) injection well and found a set of conditions, a (11) contaminant level, so we designed our treatment (12) plan to handle those conditions. We've been (13) finding contaminant levels that are 30 times (14) higher than what we anticipated. We are finding (15) new contaminants that we hadn't seen. And we (16) believe that the reason we're seeing these new (17) contaminants and higher levels is we never really (18) pumped that injection well as hard as we've been (19)

pumping it.

(20) I think in terms of pounds of (21) contaminants removed, we are probably doing (22) better than if we had been pumping at 50 gallons (23) a minute at the concentrations we anticipated. (24) So in terms of pounds of contaminants removed, I (25) think we've been very successful. We haven't

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(1) been, you know, pumping at gallons per minute (2) that we planned on, but we have, as I said (3) removed, over 3,000 pounds of organic (4) contamination.

(5) MR. STORMBERG: Just to interject, we (6) are approaching the rate that we projected for (7) the interim action. We're in the 40 to 50 range, (8) but it's not continuous.

(9) AUDIENCE MEMBER: Now I have a (10) follow-up question to that.

(11) Should the preferred alternative be (12) put into place, would that continue to be a batch (13) type process or are you looking at a continuous (14) flow of -

(15) MR. HARELSON: It would, I think, be (16) continuous, yes. You know, part of this - my (17) training is in engineering, and the engineering (18) of this stuff is easy. You have to know what you (19) got coming in and what - you know, you can (20) design something to send out what you want. What (21) the hard part is, is we are not sure what we're (22) going to have coming in. And that's what we've (23) learned on this interim action.

(24) You know, the engineering was easy to (25) design a plan for the concentrations we expected,

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(1) but now we're getting concentrations that are (2) much higher. And I don't see that changing with (3) the preferred alternative. I think we're going (4) to get surprises.

(5) MR. JENSEN: But in general right now (6) you're working in batch mode until things (7) stabilize, and then you hope to go continuous; is (8) that right?

(9) MR. HARELSON: Yes, that's right. We (10) have had initial batches that came in at very (11) high levels, and those levels have kind of (12) dropped off. And we are very hopeful that in the (13) next very near future we'll be able to

go to this (14) continuous operation. But we had some initial (15) very big slugs of contamination. The levels have (16) dropped off, and we're to the point where we're (17) very hopeful that we'll be able to go continuous (18) very soon. (19) AUDIENCE MEMBER: Now, would the (20) surfactants and steam tend to cause another one (21) of these kind of a big bump of contaminants?

(22) MR. HARELSON: Potentially - well, I (23) think that's the desired effect. Yeah, (24) potentially they would. Greg can maybe talk to (25) this better than I, but I think initially not

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(1) only in the enhanced pump-and-treat, but in (2) standard pump-and-treat, you start with high (3) levels of contamination and as you work they tail (4) off.

(5) MR. STORMBERG: The difference between (6) the conventional and the enhanced that we're (7) proposing, as you might or might not know, under (8) conventional technologies, all you can do is pull (9) water out that has the dissolved contamination. (10) Okay. In the case of the injection well, we have (11) some suspended particulate type matter that also (12) has some contamination with it, which is causing (13) fairly large peaks in our concentrations.

(14) With the enhanced alternative or (15) enhanced technologies, the purpose of that (16) enhancement is to increase that solubility to get (17) more of the contaminants to come out of that (18) undissolved residual phase into the dissolved (19) phase, and then we pull it out.

(20) Basically we're trying to circumvent (21) the chemistry and boost up the solubility of the (22) contaminants. So I think that the system would (23) be designed inherently to deal with high (24) concentrations, much higher than we anticipated (25) in the interim action.

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(1) AUDIENCE MEMBER: I would assume also (2) a somewhat different nature of contaminant; (3) right? Some of the contaminants would be (4) naturally in the water rather than - would be (5) pretty easy to pull out of the water, wouldn't (6) they?

(7) MR. STORMBERG: Some are - some sorb (8) to the rock matrix more



than others, yes, (9) hopefully it will enhance both.

(10) AUDIENCE MEMBER: So are you saying (11) some are attached to the rocks, they've adhered (12) to the rocks?

(13) MR. STORMBERG: More so than - for (14) example, the volatile organics are fairly soluble (15) in relation to some of the radionuclides. The (16) radionuclides such as cesium tend to have high (17) sorption capacity.

(18) AUDIENCE MEMBER: Can you put that (19) chart back up that has the underground sort of...

(20) MR. HARELSON: The cross-section?

(21) AUDIENCE MEMBER: Please.

(22) Now, this injection well at its - can (23) you explain to me why there's a variant of 200 to (24) 400 feet, or what is the - when this thing tails (25) out, at what level does it tail out?

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(1) MR. HARELSON: The injection well is (2) drilled down to, I think, 305 feet. This - (3) yeah, roughly here. The interbed here is at (4) about 400 or 420 feet below the surface. The (5) water table is about 200 feet below the surface. (6) We put wells, sampled above and below. Above the (7) interbed it was contaminated, below it was clean.

(8) AUDIENCE MEMBER: So if the water (9) level today is at 200 and you're finding high (10) contamination at the 200-foot level because it's (11) within that aqueous environ, what if between 1952 (12) and 1971 this - when the injection process, what (13) if the aquifer were higher and there is (14) contamination above the present water table?

(15) MR. HARELSON: That's a very good (16) question.

(17) Greg?

(18) MR. STORMBERG: He passes the hard (19) ones on to me.

(20) It has dropped over the course of the (21) last ten years, I think on average three or four (22) feet it's dropped. Okay. With the tools that we (23) have now to analyze for some of the constituents, (24) sometimes we can see that. Okay. We can tell (25) whether that has happened.

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(1) We do not see that with the (2) radionuclides, for example. We do logging on (3) these wells and we would

be able to see in the (4) vicinity or just above the injection well if (5) there were say a spike of cesium. I can't answer (6) that for the volatile organics. It is possible, (7) as Dan mentioned.

(8) MR. HARELSON: On these remediation (9) technologies, I think the steam enhancement could (10) be designed to try to address that, so that you (11) could clean up above the water table. You know, (12) you would inject your steam and then collect it, (13) and you could put your collection up here so that (14) you could pass that steam through the portion (15) that doesn't necessarily have water in it now.

(16) I'm not sure on the surfactant. Can (17) you do that?

(18) MR. STORMBERG: No. The steam would (19) cause more of a volatilization if there were (20) contaminants.

(21) AUDIENCE MEMBER: Is there a plan to (22) look at that now or attempt to do that?

(23) MR. STORMBERG: No, there is not.

(24) AUDIENCE MEMBER: Because if the water (25) table goes back up, aren't you going to have the

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(1) same problem?

(2) MR. STORMBERG: If there is residual (3) contamination left. If it's just the volatile (4) by-product, probably not. As Margie English (5) mentioned, this is a very complex system. As you (6) might know, there is undissolved residual (7) contamination. There are quite a few similar (8) sites across the nation with this same problem, (9) and that's why we are proposing these innovative (10) technologies here rather than conventional (11) technologies, because conventional pump-and-treat (12) has a very, very difficult time of success to the (13) scale that is necessary.

(14) AUDIENCE MEMBER: I have some concern (15) about the surfactant, because although I (16) understand the purpose of it, how can you be sure (17) that you're going to pump all of it out? And (18) what kind of a life span does surfactant have in (19) the groundwater?

(20) MR. HARELSON: That is also a concern (21) of ours. We would need to select a surfactant (22) that is nontoxic and biodegradable, so that (23) aspect

of it would be looked at very carefully.

(24) And that is a very legitimate concern.

(25) MR. STORMBERG: They do make

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(1) surfactants that are biodegradable.

(2) MR. JENSEN: Soap.

(3) MR. STORMBERG: Yes, basically.

(4) AUDIENCE MEMBER: I'm not sure that (5) this is quite the place to ask this, but one (6) concern that I've had for some time is at what (7) point in the process the cost part of it is (8) factored in.

(9) It's always been kind of my hopes that (10) the science would come first, and then once (11) having looked at that then say, okay, now what is (12) this going to cost, rather than saying, well, you (13) know, factoring it in all the way down the line.

(14) Certainly, you know, the Alternative 4 (15) looked to be two to three times the amount of the (16) preferred alternative.

(17) I guess my question would be, were (18) these evaluated first as far as effectiveness and (19) then have the dollar figures attached, or was the (20) preferred - is the preferred alternative, you (21) know, basically a combination of the two?

(22) MR. HARELSON: They were evaluated - (23) cost is a factor. There are a hierarchy of - (24) this standard EPA methodology for evaluating (25) things has a hierarchy of what you look at most

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(1) importantly. And they have the - what they call (2) threshold criteria, which are protect human (3) health and the environment and comply with ARARs, (4) which are regulations, laws and regulations.

(5) Those are looked at first. These (6) others are looked at on an equal footing. With (7) Alternative 3, we're not saying walk away from (8) the rest of the plume because it costs too much. (9) What we're saying is, let's try to remediate the (10) worst part of the plume, see what we can learn, (11) and then address the rest of the plume in the (12) subsequent investigations when we'll understand (13) the problem better and can perhaps approach it (14) more cost-effectively.

(15) AUDIENCE MEMBER: Obviously

the goal (16) is to clean this place up, but the problem is, if (17) you've got a real bad problem in the area of the (18) injection well, and you don't know where the (19) water table was before, I mean, it's good to (20) clean it up, I see that, but to spend \$25 million (21) when you don't know if you're even going to make (22) a dent if the water table comes back up, I (23) mean...

(24) MR. HARELSON: That's a lot of money.

(25) AUDIENCE MEMBER: That's a lot of

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(1) money.

(2) MR. STORMBERG: The water table has (3) not dropped I think as significantly as the (4) comments implied. It has dropped three or four (5) - three to five feet in the 50 years. We have (6) fairly good records in that respect.

(7) AUDIENCE MEMBER: Okay.

(8) MR. HARELSON: Is that trend going (9) to -

(10) MR. STORMBERG: I don't know about the (11) trend, but we know we have at least 250 feet of (12)

contaminated soil; so we're looking at a (13) relatively - I mean, your question has come up (14) before, very definitely.

(15) AUDIENCE MEMBER: Well almost the (16) inverse of that, but at the rate we seem to be (17) sucking on that aquifer down at this end, looks (18) like as you draw more and more from one end the (19) rate of dispersion might come even faster. I (20) presume that the network of monitoring wells is (21) looking at that.

(22) MR. STORMBERG: Yes, it is. The water (23) table at TAN is fairly flat, meaning that it only (24) - the water only moves about a half a foot per (25) day, which is relative slow for the Snake River

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(1) Plain. And as you just mentioned, the monitoring (2) network is designed the monitor the continued (3) migration dispersion of the contaminants.

(4) AUDIENCE MEMBER: Kind of along those (5) lines, the treated water would be reinjected?

(6) MR. HARELSON: (Nodding (7) affirmatively.)

(8) AUDIENCE MEMBER: At the same site?

(9) MR. HARELSON: It would be in

the - (10) nearby, not in the plume. We would try to locate (11) the reinjection points to facilitate our (12) remediation. It might be possible to locate (13) these reinjection points so that it actually (14) pushes the contaminated groundwater towards our (15) extraction wells. The water that would be (16) reinjected would need to be treated to meet the (17) federal drinking water standards, so it would be (18) water that is clean enough to drink right out of (19) the pipe.

(20) AUDIENCE MEMBER: So, assuming that (21) the water going back in is clean and all of that, (22) there would be little net loss of water in the (23) aquifer then as a result of these?

(24) MR. HARELSON: That's right.

(25) MR. STORMBERG: Right.

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(1) AUDIENCE MEMBER: The air stripping, I (2) would assume that, you know, now, that's for the (3) volatile organics. Right?

(4) MR. HARELSON: Right.

(5) AUDIENCE MEMBER: Now, is there much (6) evaporation as part of that?

(7) MR. HARELSON: Of the water?

(8) AUDIENCE MEMBER: Yeah.

(9) MR. HARELSON: It would be (10) incidental. There would not be a lot of loss. (11) In terms of the air stripping, we are trying to (12) approach the design of the treatment processes in (13) a little bit different way than we have on other (14) projects. On other projects, we have kind of (15) come in and said, this is what we want to do and (16) this is how we want you to do it. That's what (17) we've told the subcontractors that we've hired.

(18) One of the things that I've learned (19) from the injection well interim action, you know, (20) we wrote a Record of Decision on the injection (21) well interim action and we said, this is what (22) we're going to do, and we told our subcontractor, (23) this is how we want you to do it, we want to use (24) air stripping, we want you to use ion exchange.

(25) The subcontractors have come back and

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(1) said, you know, this is a better way to do it and (2) we would have done it this way, except we had to (3) do it, because

that's what was said in the ROD.

(4) So we are trying to write the ROD in a (5) little bit more flexible manner, so that the (6) people that are the real experts on the cleanup (7) technologies that are out there available across (8) the country can come back to us and say, you (9) know, you told us what you wanted, this is how we (10) would do it.

(11) And then between me and the State and (12) EPA, we can look at it and say, yeah, that seems (13) like a good approach, it's going to - has the (14) best chance of accomplishing what we want to (15) accomplish, it's not going to make the problem (16) worse, it's not going to pollute the air.

(17) So air stripping is a possible (18) technology, but we're also open to considering (19) other technologies.

(20) MR. JENSEN: Any other questions?

(21) AUDIENCE MEMBER: I have one.

(22) At the various levels of testing that (23) you do, do you find that certain of these problem (24) chemicals travel up better or more - in greater (25) numbers, or certain sink, some are heavier, some

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(1) are lighter?

(2) MR. HARELSON: Yes. The (3) trichloroethylene, the TCE, which is the (4) widespread contaminant, is much denser than (5) water. And we're not sure if there is a separate (6) phase, like there's salad dressing that separates (7) out, or whether there's simply, you know, this (8) residual sludge, you know, the sanitary sewage (9) waste from down there. There may be just organic (10) matter that has a lot of this TCE tied up in it, (11) but there is density differences, and there is (12) potential stratification based on density.

(13) MR. JENSEN: Any other questions?

(14) By the way, what we'll do is when (15) you're done with questions, we will do the (16) comment period, and then Dan and Greg will be (17) around and you can talk to them one-on-one later (18) tonight if you'd like, but we welcome any (19) questions you have now while we're here.

(20) Okay. Let's go ahead and go into the (21) formal comment period then.

(22) During the comment period part now, (23) this is the time for you to give your comments, (24) state your

concerns, speak your peace, and we (25) won't respond to those. We'll just let you say

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(1) what you'd like to say.

(2) So if you would, if you have a comment (3) to give, would you please give your name first, (4) and speak loudly so the court reporter can hear (5) you, and we will just let you give you comments.

(6) Is there anybody - I don't think (7) anyone signed up at the back to give a comment, (8) so we will just open it up if anybody wants to (9) give one. We may ask you for a clarification to (10) clarify that, if we think there is something we (11) might not understand. In general, it's your time (12) if you'd like to take it. (13) Anybody?

(14) Going once, going twice. Okay. And (15) by the way -

(16) AUDIENCE MEMBER: I do have a quick (17) question. What is the deadline for written (18) comment?

(19) MR. JENSEN: I was just going to cover (20) that.

(21) Let's go ahead and close the comment (22) period, but at the back of the proposed plan (23) there is an addressed, postage-paid sheet. And (24) the comment period goes through June 17. So (25) anytime between now and, what, about a week from

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(1) Monday, something like that, you can submit a (2) written comment and attach to that, or whatever (3) you need to do.

(4) AUDIENCE MEMBER: And I may need to (5) ask Rick about this. The other information that (6) we might need to comment on this is at your (7) offices?

(8) MR. TROMBLAY: Yes, that's right.

(9) MR. JENSEN: Also, by the way, right (10) inside the proposed plan there are addresses for (11) where the information is, like in Boise, again, (12) that's Rick's office's address there.

(13) If you need to call for information, (14) there are phone numbers for - this is the DOE (15) office, in fact, Reuel Smith's number is here at (16) the bottom. The EPA office number, address is (17) here, and the State office here in Boise is in (18) there as well. So if you need information from (19) any of us, you can feel free to call. Okay?

(20) All right. Let's take about a (21) ten-minute break and we'll let the other

part, (22) our presenter, get set up. The second half is a (23) lot shorter than the first half, if you care, and (24) we will talk about the Track 1s in about ten (25) minutes.

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(1) (Recess.)

(2) MR. JENSEN: The second part of the (3) presentation, even though it's part of the same (4) proposed plan, it's kind of a different subject. (5) And that is, when we first signed the Federal (6) Facility Agreement with INEL, there were about (7) four sites that we knew about that needed to be (8) looked at.

(9) Some of those are very obviously (10) problems, like the groundwater we talked about (11) and the injection well.

(12) There were several other sites, (13) however, that were very small. Maybe somebody (14) heard about an acid spill or an oil spill or a (15) gasoline spill, or several things like that. And (16) we hadn't done a lot of investigation on those, (17) so what we did under the Federal Facility (18) Agreement is we set up a system whereby we could (19) screen to see if there was an issue there that (20) needed to be looked at further, whether it was (21) something we could clean up real quickly or (22) whether there was nothing there at all.

(23) So what we did is set up a couple of (24) investigation processes. We call them Track 1 (25) and Track 2, just kind of made-up terms. And

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(1) what they in general are, are for sites that are (2) fairly small. And for a Track 1, generally the (3) approach is that we know about the site, but (4) there is information that we have, and we just go (5) in and evaluate the existing information. There (6) may have been some sampling data already in the (7) files, or we may even collect a couple of (8) samples. But in general, this is more of an (9) evaluation based on what we know about the site (10) already.

(11) A Track 2 is more intense. We (12) actually generally go out and take a few samples (13) there and do a risk evaluation based on that.

(14) The outcomes of those are, first of (15) all, if we don't find anything, we make an (16) initial determination that there's no more action (17) needed.

(18) If we find out that there is a (19) definite issue, it's something we can run

out and (20) grab quick, like, for example if there was an oil (21) spill or solvent spill, and it's a fairly (22) confined area, there's stained ground there, we (23) can see it, we can go out and grab it. (24) On the other hand, if we find out that (25) there is contamination there that needs to be

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(1) investigated further, then we forward the site to (2) our Remedial Investigation/Feasibility Study.

(3) So that is kind of the general (4) approach we set up.

(5) Tonight what we're going to be talking (6) about are several sites that were the Track 1 (7) type, and sites that essentially we made an (8) initial determination no further action was (9) necessary.

(10) And as we do that, that is a (11) preliminary determination, and now we're taking (12) that and bringing it for public comment. And we (13) will formalize that initial determination in the (14) Record of Decision.

(15) And I think this is the second project (16) we have done that on. The one a couple months (17) ago for Naval Reactors Facilities had some (18) preliminary investigations that we were (19) formalizing there as well.

(20) But anyway, I'll go ahead, our (21) presenter tonight is T. J. Meyer from EG&G, and (22) I'll introduce him now and he will give the (23) presentation on the Track 1s.

(24) MR. MEYER: Thank you. Today I'm (25) going to be presenting 31 Track 1 investigations

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(1) which were outlined in the proposed plan, and (2) then present the agency's recommendations for (3) these 31 Track 1 investigations.

(4) As Nolan said, Track 1 is a (5) preliminary investigation. And one way to look (6) at it is that, when you have a lot of existing (7) information on a site, we try to pull all that (8) information together to see if we can come to an (9) earlier decision of what to do: No further (10) action, removal action, or go out and do further (11) investigation. And in this way, we saved a lot (12) of money and we streamlined the investigation on (13) these sites.

(14) Tonight I'll be talking about 31 (15) sites. There a total of 40 Track 1 (16)

investigations at TAN. The remaining nine need (17) further investigation, so we will be presenting (18) them at a later time.

(19) The 31 investigations we will be (20) talking about today can be categorized as 18 (21) abandoned and removed or inactive - they're (22) either removed or they're inactive underground (23) storage tank sites. There's ten potentially (24) contaminated sites. And I say "potentially (25) contaminated," because the initial information

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(1) that we had was that there was some debris on the (2) ground, and it wasn't very well characterized, (3) and so it looked like there was something there, (4) but also looked like we had enough information to (5) go out and make an assessment. So they were (6) considered to be potentially contaminated.

(7) There are three waste disposal sites (8) also.

(9) Each one of these sites had Track 1 (10) investigation done, where all the historical (11) information was gathered. And that information (12) consisted of engineering drawings and process (13) knowledge of how the site operated, including (14) knowledge of what went on back in the '50s and (15) '60s and '70s at some of these sites, and a (16) collection of photos to try to document how the (17) site was used and what happened at the site, to (18) get an idea of the past condition.

(19) Then each of the sites were visited, (20) and in many cases, samples were collected to try (21) to determine what the current conditions are at (22) the site in terms of contamination and also with (23) what the site looks like today.

(24) Finally, a risk evaluation was done on (25) this information, and the whole packet was put

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(1) together.

(2) These investigations typically are (3) anywhere from 30 to 50 pages. This is just one (4) of the sites. We have binders with all of these (5) packets together, if anybody is interested in (6) looking at them, and they're all available in the (7) Administrative Record, the public record.

(8) These packets consist of a bunch of (9) questions, tables, sampling

information, and the (10) risk assessment which was used to describe or (11) evaluate the site. And this is the evaluation (12) information that the agencies have reviewed to (13) make their recommendation.

(14) The locations of these 31 sites occur (15) across the TAN complex. Each of the major (16) facilities were discussed earlier: The (17) Loss-of-Fluid Test Facility; the Initial Test (18) Engine Facility, located north, the Water Reactor (19) Test Facility, which is in the southeast; and the (20) main facility, which is known as the Technical (21) Support Facility.

(22) Each one of these facilities has (23) several tanks at them, and the tanks are shown in (24) a purple or violet color at each of the (25) facilities.

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(1) Only the Loss-of-Fluid Test Facility (2) and Technical Support Facility had potentially (3) contaminated soil sites, shown in green.

(4) All three waste water sites occur at (5) the Water Reactor Research Test Facility, and (6) they're shown here in blue. And these wastewater (7) sites received mainly processed water, (8) uncontaminated processed water or sanitary water.

(9) The results of the Track 1 (10) investigations showed that 23 sites had no (11) contamination at all. Nine of the sites, as I (12) mentioned earlier, require additional work, and (13) we're not going to be talking about them today.

(14) Of the remaining 31 sites, eight of (15) them had contamination found at them, and those (16) sites are listed below in this table here. The (17) location of the facility is shown here, and each (18) of the facilities had a contaminated site. They (19) weren't just localized at one facility.

(20) The types of sites can be really (21) characterized mainly as tank sites, and then (22) there was one contaminated soil site.

(23) This site here where there's (24) contaminated soil, there was an underground (25) storage tank nearby that had overflowed and had

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(1) caused the problem.

(2) The types of contaminants were shown (3) here, and they're typically what you'd expect at (4) underground

storage tanks: Benzene, toluene, (5) ethyl benzene and xylene type contaminants. And (6) then the one contaminated site had a (7) radionuclide.

(8) The risk assessment that was done of (9) these eight sites showed that there were only two (10) sites that had potential carcinogens present, (11) benzene and the cesium-137, the radionuclide. (12) And the risk assessment for both of these showed (13) that the contaminant levels present at those (14) sites were below the carcinogenic risk range (15) outlined by EPA, meaning there was acceptable (16) risk range here.

(17) The remaining risk sites are not (18) considered carcinogens and the risk assessment (19) showed that the hazard index for the ethyl (20) benzene, the toluene and the xylene were below (21) the noncarcinogenic hazard index level, (22) indicating that sensitive populations were likely (23) not to be affected by the level of contaminants (24) found there. (25) If each of you have a proposed plan, I

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(1) would call your attention to Table 3 on page 14.

(2) And the first two columns are shaded (3) for cesium and benzene, and they show the amount (4) of benzene or the amount of cesium that would (5) need to be present to create a risk above 10 to (6) the minus 6. And each of those sites had (7) contaminant levels below the numbers shown here.

(8) The remaining three columns, the (9) noncarcinogenic contaminants, toluene, ethyl (10) benzene and xylene, again, you can see the (11) contaminant levels there, and the levels we had (12) at each of our sites were far below that, orders (13) of magnitude below, and the levels are actually (14) shown or described in each of the site (15) descriptions.

(16) In conclusion, the agencies are (17) recommending no further action for each of these (18) 31 Track 1 sites, based on the fact that the 23 (19) sites from the preliminary investigations and (20) historical records and the field sampling, no (21) contamination was found, and for the remaining (22) eight sites, the risk assessment showed that (23) contaminant levels present posed an acceptable (24) level of risk.

(25) Are there any questions?

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(1) AUDIENCE MEMBER: Well, one question. (2) Being as, let's assume that this gets to the (3) Record of Decision stage and they say, okay, our (4) decision is that there is no problem here, we're (5) going to move on. Do these sites remain in the (6) inventory and will they be revisited at some (7) point just to reconfirm that decision?

(8) MR. MEYER: Yes, they will be (9) revisited. If you remember earlier when Nolan (10) was talking about this, there is this one (11) Operable Unit at end of the TAN investigation (12) call Operable Unit 1-10. That's the WAG 1 (13) comprehensive RI/FS. Each of these sites will be (14) revisited. First of all, the one question that (15) will be asked is: Has anything new been learned (16) that would change the earlier decision? And then (17) they would be revisited to assess the cumulative (18) risk of not just the one site that we've done (19) here, but they'll see what the risk is at this (20) site as well as other sites around to give you an (21) idea what a receptor living there would see in (22) terms of the cumulative aspect.

(23) MR. JENSEN: This one right here would (24) start in about a year.

(25) MR. MEYER: Does that answer your

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(1) question?

(2) AUDIENCE MEMBER: Yes, it does.

(3) Then I have one other question. I (4) understand that in the - oh, that the (5) reauthorization for CERCLA is going through (6) Congress right now. They're talking about (7) establishing some limits for radionuclides (8) similar to what they've done with establishing (9) limits for carcinogens. I've heard talk of 10 to (10) the minus 4, 10 to the minus 6, various levels, (11) to establish some kind of a cleanup or some kind (12) of a - put a number on all of this, so to speak, (13) quantify it somehow.

(14) Should these changes go in, does this (15) affect any of the work that's being done right (16) now, particularly with the cesium and some of the (17) others?

(18) MR. MEYER: I really don't know the (19) answer.

(20) Nolan?

(21) MR. JENSEN: Generally what happens in (22) a Record of Decision is when that thing is signed (23) you freeze your requirements at that date. So (24) essentially whatever applies at the time the (25) Record of Decision is signed, that's what

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(1) applies. Now, I'm sure there are exceptions to (2) that in some cases, as there always are, but (3) that's generally their approach.

(4) AUDIENCE MEMBER: So conceivably if (5) the EPA does establish these levels for (6) radionuclides, when we get to this comprehensive (7) investigation, they might then apply those levels (8) to the previous data?

(9) MR. JENSEN: Possibility. For (10) example, one thing we might do, if it turns out, (11) for example, that this new law or the new (12) reauthorization would drastically change what was (13) done earlier, then if we decided with the EPA and (14) State's concurrence that we wanted to do (15) something different, that would probably be a ROD (16) amendment and we would come back and do this same (17) process over again. So that if we did do that, (18) you would hear about it and get to comment on (19) it. But I'd be pretty surprised if they changed (20) things that drastically.

(21) I think the intent is more to (22) streamline and set some levels which, you know, (23) they can be fairly comfortable with, and perhaps (24) reduce some of the effort that goes into risk (25) assessment.

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(1) AUDIENCE MEMBER: Well, yeah, I know (2) some of what we've been learning is that (3) essentially some of the ways we've been measuring (4) just aren't working, and I got the feeling it was (5) to make things easier on everybody to quantify (6) some of these levels, particularly the radiation (7) levels, but I just didn't know how this could (8) affect what's happening here.

(9) MR. JENSEN: Did you want to say (10) anything, Jeff, in addition or -

(11) MR. FROMM: Well, yeah. I thought EPA (12) was actually thinking about something more around (13) 2, than 10 to the minus 4. I think if anything (14) they might be a little more conservative with the (15) risk

management we're using now than what (16) reauthorization might put into play. Based on (17) what I've read, that might be the case. But I (18) don't think there would be a great change either (19) way.

(20) MR. JENSEN: Just for your (21) information, too, there is another investigation (22) that is just getting under way. It's Operable (23) Unit 10-06. And that one is looking specifically (24) at rad-contaminated surface soils at the site. (25) And one of the things we're trying to do there is

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(1) get a feel how the risk assessment will work and (2) try to come up with some of our own criteria or (3) levels that we might clean up to. But that one (4) is still ongoing.

(5) Any other questions?

(6) Going to be easy on me. Okay.

(7) Reuel asked me to mention, on the back (8) of the agenda for tonight we do have an (9) evaluation form. We know we throw an awful lot (10) of information your way at these meetings, and (11) we're always trying to do better, and you're the (12) ones that can tell us where we need to improve, (13) so, please, if you have suggestions on how to (14) improve these meetings, write them down.

(15) AUDIENCE MEMBER: Coffee.

(16) MR. JENSEN: Okay. Any more questions (17) before we start the comment period?

(18) And maybe I should even ask, is anyone (19) planning on giving a comment?

(20) Then we won't even bother with that (21) formality. One more chance. I surely don't want (22) to stop anyone who would like to give a comment. (23) Okay. I think that concludes it then.

(24) Thank you very much for coming. And (25) again, the comment period goes to June 17, so

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(1) feel free to comment any time during that period, (2) and we will see you next time.

(3) (Meeting concluded at 8:13 p.m.)

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(1) REPORTER'S CERTIFICATE (2) STATE OF IDAHO )

) ss. (3) COUNTY OF ADA )

(4) I, DENECE GRAHAM, Certified

Shorthand (5) Reporter and Notary  
Public duly qualified in and (6) for the  
State of Idaho do hereby certify:

(7) That said hearing was taken down  
by me (8) in shorthand at the time and  
place therein named (9) and thereafter  
reduced to computer type, and that (10)  
the foregoing transcript contains a true  
and (11) correct record of the said  
hearing, all done to (12) the best of my  
ability.

(13) I further certify that I have no (14)  
interest in the event of this action.

(15) WITNESS my hand and seal this  
8th day (16) of July, 1994.

(19) DENECE GRAHAM, C.S.R. and  
NOTARY PUBLIC in and for

(20) the State of Idaho.

(25) My Commission expires April 21,  
2000

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## TRACK 1 INVESTIGATIONS AT THE TEST AREA NORTH

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1           MR. JENSEN: Okay. My name is Nolan  
2 Jensen. I work for the Department of Energy in  
3 Idaho Falls and I'll be acting as kind of a  
4 moderator tonight. I'd like to welcome you all  
5 here.

6           A couple of purposes for our meeting  
7 tonight, of course, is here on this chart, really  
8 two basic reasons. One is to give you  
9 information, answer questions, talk about any  
10 concerns you might have, and then the other is to  
11 receive your comments if you have any comments  
12 tonight on the plans that we have.

13          Before we get going, though, Rick is  
14 at the back of the room. Rick Tromblay manages  
15 the INEL office here in town and I'll just give  
16 him a minute to introduce himself.

17          MR. TROMBLAY: Good evening,  
18 everybody. I'd like to extend a warm welcome to  
19 all of you, those who came up from the INEL as  
20 well as those who came in from town and some of  
21 you came from the area but out of town.

22          I'm Rick Tromblay, I'm with the INEL  
23 Boise office, and I know most of you. I know  
24 Helen, Fritz, Joe, Kathy is over there.

25          I would like to let you know that a

1 lot of the information in detail is stored at our  
2 office on 816 West Bannock on the third floor.  
3 All of these project people keep us well up to  
4 date with information on the current status of  
5 different cleanup sites, so that if you want to  
6 continue to follow what's going on with Test Area  
7 North or any of the other areas insofar as  
8 cleanup or other initiatives, don't hesitate to  
9 come up to the office and pay us a visit. Again,  
10 we're at 816 West Bannock on the third floor and  
11 my phone number is 334-9572. And I'd like to  
12 once again thank you all for coming and thanks so  
13 much for your interest.

14 MR. JENSEN: Thanks, Rick. Really  
15 what we do is descend upon his office unannounced  
16 and use up all his space.

17 Okay. A couple of things I want to  
18 talk about before we get into the meeting, and  
19 that's just a real brief update of where the  
20 Environmental Restoration program at INEL is.

21 We're about three years into the  
22 Federal Facility Agreement that we signed with  
23 EPA and the State of Idaho. We have  
24 representatives from both of those agencies here  
25 tonight and they'll talk in a few minutes. But

1 in those three years, we have completed nine  
2 Records of Decision and we have two more that are  
3 very near completion. We did a public meeting a  
4 couple of months ago here, and so those will be  
5 coming up soon, and then this project will be  
6 Record of Decision Number 12, so we're real  
7 pleased with that.

8 We met 27 of our enforceable deadlines  
9 so far, and we've only had 27, so we've met all  
10 those. We're accelerating several projects,  
11 we've completed a couple of interim action  
12 cleanups, one of those was the TRA Warm Waste  
13 Pond. We came up with a public comment period on  
14 that a couple of years ago.

15 And then some unexploded ordnance,  
16 that project, the first phase was completed. So  
17 things are moving along and we're real happy  
18 about that.

19 Tonight we're going to be talking  
20 about Test Area North, or TAN, as we commonly  
21 refer to it. And the proposed plan, if you'll  
22 notice, has two general parts, and we'll be kind  
23 of dividing the meeting into two separate  
24 meetings almost.

25 The first part, we'll be talking about

1 TAN groundwater contamination, and then we'll be  
2 talking about several preliminary investigations  
3 that we call Track 1s. And this charter up here  
4 is intended to give you a little bit of a feel of  
5 how things are organized.

6 At the INEL there are ten Waste Area  
7 Groups. Test Area North is Waste Area Group 1.  
8 And basically the Waste Area Groups correspond to  
9 that facilities across the desert. And each of  
10 those Waste Area Groups are divided into what we  
11 call Operable Units, and then the Operable Units  
12 are divided into other sites, individual sites,  
13 and we kind of group them together in like  
14 problems.

15 Well, in WAG 1, Waste Area Group 1,  
16 which is TAN, which we're talking about tonight,  
17 this is the project that we'll be talking about  
18 for the most part, the TAN groundwater, it's  
19 closely related to an injection well interim  
20 action. That action is already ongoing. In  
21 fact, this injection well is the source of the  
22 contamination that we'll be talking about tonight  
23 and there is -- we're pumping water out of that  
24 well now and treating it, and Dan Harelson will  
25 talk to you about that in a few minutes.

1           And then we'll also be talking about  
2 these Track 1 investigations. And they are  
3 several smaller sites from some of the other  
4 Operable Units that we've done investigations on,  
5 so we'll be talking about those.

6           So basically what we do is we have  
7 several of these different sites, Operable Units,  
8 that we are doing investigations on. After we do  
9 all of that work, at the end, we'll kind of wrap  
10 it all together in a big comprehensive  
11 investigation, and that will basically do the job  
12 of -- since we've looked at them all individually  
13 now, this investigation will look at them from  
14 the big picture and see if there is some  
15 cumulative comprehensive effects that we missed  
16 or potentially didn't adequately evaluate when we  
17 were looking at the sites just by themselves. So  
18 that will be coming up starting in about a year  
19 for Test Area North.

20           So hopefully that will give you kind  
21 of a feel for how things are organized and what  
22 we'll be talking about tonight.

23           Okay. One other thing I want to talk  
24 about very briefly, and those of you who were at  
25 our meetings a couple of months ago will have

1     seen this already, but you have to bear with me,  
2     and that's just to give you an introduction about  
3     really what this is all about. And that is,  
4     essentially what we are doing is looking at all  
5     the sites that we've identified at INEL where  
6     there could have been or where we know there has  
7     been a release of a contaminant, a hazardous  
8     contaminant. And the whole thing we're doing is  
9     checking to find out what the contaminants are  
10    and what kind of risks they pose.

11           And so when we talk about risks, there  
12    are two general types of risks that we do the  
13    assessment on. One of those is carcinogenic  
14    risk, or cancer-causing contaminants, and then  
15    the other is the other contaminants that have any  
16    other type of health effect, like organ damage or  
17    birth defects, anything like that. And they're  
18    expressed differently.

19           For carcinogenic risk, we refer to  
20    just that, to the risk of -- to the potential  
21    risk for contracting cancer. The Environmental  
22    Protection Agency has set up a risk range that is  
23    deemed to be acceptable, and that risk range is  
24    between one and 10,000 and one and 1,000,000  
25    chances of cancer, chances of contracting cancer,

1     above the national average. So if we do the risk  
2     assessment and find out that the risk falls  
3     within or below that range, then it's deemed to  
4     be acceptable and no cleanup is likely required.

5             In the case of noncarcinogenic risk,  
6     we refer to a hazard index. And what that hazard  
7     index is, it's an evaluation of how likely or how  
8     unlikely it is that exposure to that situation  
9     will cause sensitive populations to have that  
10    health effect. And if we're at a hazard index of  
11    one or below, then we have a high degree of  
12    certainty that even sensitive populations will  
13    not have that health effect.

14            As we get above one, then our comfort  
15    level decreases and we may need to do cleanup,  
16    but one and below, there's a high degree of  
17    certainty that there is not a problem.

18            So hopefully that will just give you a  
19    brief introduction and we'll be referring to this  
20    throughout the presentation tonight to give you  
21    kind of a feel for what's going on.

22            Okay. Just one last thing about the  
23    meeting format and then I'll introduce our  
24    presenters.

25            Like I said, the meeting will be in



1 two parts. We'll talk about the TAN groundwater  
2 first, and then we'll talk about these other  
3 preliminary investigations. And so we'll have  
4 about a 10- or 15-minute presentation, we'll  
5 follow that with a question-and-answer period,  
6 and then we'll follow that with a formal comment  
7 period. And we have a court reporter here, so if  
8 you'd like to give a comment, that can be taken  
9 down.

10 So I'll go ahead and introduce now  
11 some of our associates.

12 First of all, all of the work that we  
13 do is under what's called our Federal Facility  
14 Agreement and Consent Order. It's an agreement  
15 that we signed with EPA and the State of Idaho to  
16 do the cleanup work.

17 And we have tonight with us Margie  
18 English, who will talk to you. She's from the  
19 Department of Health and Welfare here, Division  
20 of Environmental Quality. And then after she  
21 takes a minute, Matt Wilkening from EPA Region 10  
22 in Seattle will take just a minute.

23 MS. ENGLISH: Thank you, Nolan.

24 I am the Waste Area Group manager for  
25 the State working with the Test Area North

1 project. And I'd also like to introduce to you a  
2 couple other members our State team that are here  
3 in Boise that are here tonight.

4 We have Jeff Fromm, who is a  
5 toxicologist, and he's helped us evaluate the  
6 risk associated with these sites.

7 Also we have Gary Winter, who is a  
8 hydrogeologist, and he's helped us evaluate  
9 groundwater concerns.

10 And also is Dave Hovland. He is  
11 here. He is a technical supervisor that has  
12 helped me coordinate the reviews of these  
13 projects over the years.

14 So on behalf of myself and my  
15 colleagues, I'd like to welcome you to this  
16 meeting. We're really glad that you came out  
17 tonight. The State does encourage the public  
18 participation process and it's good to see -- I  
19 know a couple of you at least were here at our  
20 meetings about a month and a half ago for the NRF  
21 and RWMC project, and we're very glad to see your  
22 continuing interest in the INEL projects.

23 Tonight you will hear about a very  
24 complex groundwater problem and one that's going  
25 to be very difficult to solve. We have worked

1 over the past couple years with the DOE and the  
2 EPA to evaluate the problem and to come up with  
3 viable remedial alternatives, and it has not been  
4 an easy process for a number of reasons, but we  
5 believe that the preferred alternative that you  
6 will hear about tonight is the best approach to  
7 continue to address this problem.

8 And as Nolan said, and it's stated  
9 up here, the purpose of the meeting tonight is to  
10 present the data about these sites and this  
11 problem to you, to present the remedial  
12 alternatives, give you a chance to ask questions  
13 about them, and then to get your opinions about  
14 the proposed remediation strategy.

15 And any comments that you make, either  
16 verbal or written, will then be used by us, the  
17 three agencies, to determine the final remedial  
18 decisions for the sites.

19 So with that, once again I'd just like  
20 to thank you for coming and encourage you to ask  
21 any questions or offer any comments that you  
22 might have.

23 Thank you.

24 MR. WILKENING: I'm the project  
25 manager for the Environmental Protection Agency.

1           As you've heard, we've worked  
2 cooperatively with the State and the Department  
3 of Energy on this project, came up with a series  
4 of alternatives, and selected one that we believe  
5 is the best. EPA believe that the proposed  
6 actions for Track 1s and the groundwater are  
7 protective of human health and the environment  
8 and yet are cost-effective. And the preferred  
9 alternative for the groundwater is also  
10 consistent with the statutory requirement for  
11 treatment to a maximum extent possible.

12           However, these are just proposed  
13 alternatives. We do request your comments and  
14 questions regarding these, and we welcome them.  
15 No alternative will be selected until we have  
16 received all your comments and we have also given  
17 them due consideration. And so we thank you for  
18 coming here.

19           Nolan?

20           MR. JENSEN: Very quickly, by the way,  
21 I see many you have gotten some of the  
22 literature. This is the proposed plan. This is  
23 a document that gives some of the background  
24 about the projects that we'll be discussing  
25 tonight.

1           And also, I forgot to mention, just  
2 for a general overview of the cleanup program,  
3 this Citizens' Guide was developed and gives kind  
4 of a brief broad-brushed overview, so you're  
5 welcome to take those.

6           Also, Reuel asked me to thank those of  
7 you who have already submitted written comments.  
8 We have received some of those from you and  
9 appreciate that.

10           I'll go ahead and introduce our  
11 presenters now. First, Dan Harelson from  
12 Department of Energy will talk to us, and then  
13 Greg Stormberg, who also worked on this project  
14 as an investigator for EG&G, but I'll introduce  
15 Dan now and we'll do the presentation.

16           MR. HARELSON: As Nolan said, I'm Dan  
17 Harelson. I'm the Waste Area Group manager for  
18 the Test Area North and I work for the Department  
19 of Energy.

20           As I'm sure most of you are aware, the  
21 Idaho National Engineering Laboratory is a  
22 Department of Energy facility that's about 50  
23 miles west of Idaho Falls. The whole site covers  
24 about 890 square miles. The majority of the work  
25 and the facilities are in the southern portion of

1 the site. There is one facility called Test Area  
2 North which is in the northern part of the site.  
3 It's about 28 miles north of the other  
4 facilities.

5 The general groundwater flow direction  
6 is to the southwest. That's the Snake River  
7 Plain Aquifer. At the Test Area North, there's a  
8 little bit of a southeasterly component, but it  
9 hooks around and follows the general flow  
10 direction.

11 Test Area North was initially  
12 established to support the development of  
13 nuclear-powered aircraft. This was done in the  
14 1950s and the very early 1960s. The program was  
15 canceled in the early 1960s, and that was  
16 followed by a couple of programs that did  
17 research and development on nuclear energy, and  
18 there are a couple of small programs going on  
19 there now, but it is being gradually phased out  
20 at the facility at that end of the site.

21 There are four main facilities at the  
22 Test Area North. The Technical Support Facility,  
23 as the name implies, is support facilities that  
24 includes maintenance shops, offices, the guard  
25 house, the fire house is located there. Core

1 debris from the Three Mile Island reactor is also  
2 being stored there. And there is a hot shop,  
3 which is a large area where radioactive equipment  
4 can be worked on.

5 The Initial Engine Test Facility is  
6 the test stand that was used for these  
7 nuclear-powered aircraft engines. Those engines  
8 are currently on display down at the Experimental  
9 Breeder Reactor 1. This facility is not in use  
10 at all now and it is gradually being dismantled.

11 The Loss-of-Fluid Test Facility and  
12 the Water Reactor Research Test Facility were  
13 both built to support this research and  
14 development on nuclear energy. Those programs  
15 have been completed, were pretty well wound down  
16 by the early 80s. Currently at the Loss-of-Fluid  
17 Test Facility the Army is manufacturing advanced  
18 armor for the M1-A1 tank.

19 There are a couple of small projects  
20 going on at the Water Reactor Research Test  
21 Facility. One of them is research on a bomb  
22 detector for use in airports and that kind of  
23 thing.

24 This is a little bit closer view of  
25 the Technical Support Facility. The injection



1 well that we are talking about is located right  
2 about here. This is kind of looking up to the  
3 north.

4 The injection well is a 12-inch  
5 diameter pipe that goes directly to the aquifer.  
6 It was used from about 1955 through 1972 to  
7 dispose of pretty much all of the wastewater that  
8 was generated at the Test Area North. That is  
9 everything from industrial and processed  
10 wastewater to treated sanitary sewage effluent.

11 The industrial and processed  
12 wastewater has created a contaminant plume. The  
13 most widespread contaminant is trichloroethylene,  
14 which is also called trichloroethene, or TCE. It  
15 extends in a plume that's about a mile and a half  
16 long and roughly half a mile wide.

17 The contamination was first discovered  
18 in 1987 during routine drinking water  
19 monitoring. We installed an air sparging system  
20 to treat the drinking water and keep the  
21 contamination levels below the federal drinking  
22 water standard.

23 In early 1990, the Department of  
24 Energy went in and removed about 45 cubic feet of  
25 sludge from the injection well itself. We

1 followed that in 1992 with a proposed plan for an  
2 injection well interim action, and then also  
3 scoping for this meeting, or for the  
4 investigation that is the subject of this  
5 meeting, which is the Remedial  
6 Investigation/Feasibility Study.

7           The injection well interim action  
8 involves pumping and treating contaminated  
9 groundwater directly from the injection well.  
10 That effort began operation in mid-February. We  
11 originally intended to pump at about 50 gallons a  
12 minute continuously from the injection well. We  
13 have not been able to get off to that good of a  
14 start, or bad of a start, depending on how you  
15 look at it. We have been finding contaminant  
16 levels much higher than we anticipated, and also  
17 different contamination than we anticipated. We  
18 have been operating what's called a batch mode,  
19 which means we bring in about 15,000 gallons of  
20 water at a time, treat it to meet federal  
21 drinking water standards before it is discharged  
22 to an existing pond. To date with that action we  
23 have removed about 3,000 pounds of contaminants  
24 from the aquifer.

25           We're winding up the Remedial

1 Investigation/Feasibility Study. Greg Stormberg  
2 is one of the principal investigators on that  
3 study. He will describe what we learned from  
4 that study, give you a list of the alternatives  
5 or the types of alternatives that we looked at,  
6 and then I will come back to describe the  
7 alternatives that are in the proposed plan and  
8 describe why we think the preferred alternatives  
9 should be preferred.

10 So with that, Greg?

11 MR. STORMBERG: Good evening. As Dan  
12 mentioned, what I'm going to try to do is present  
13 the findings from the Remedial Investigation, and  
14 then what I want to do after that is introduce  
15 you to the types of technologies that we  
16 considered for the groundwater problem and how we  
17 refine that list of technologies down to a  
18 smaller group that we then subject to a detailed  
19 analysis and then ongoing into the selection of a  
20 preferred alternative.

21 With respect to the Remedial  
22 Investigation, there were two main objectives.  
23 One is to define the nature and extent of  
24 contamination or the types of contamination and  
25 what's their distribution. And then secondly, we

1 use that information to evaluate the risk posed  
2 by those contaminants.

3 With respect to the nature and extent,  
4 as part of the Remedial Investigation, we  
5 installed a number of groundwater monitoring  
6 wells. There were quite a few monitoring wells  
7 already present, but we went in and refined our  
8 conceptual model of the plume itself with some  
9 additional wells. We also collected several  
10 rounds of groundwater samples and had them  
11 analyzed for a number of analytes, the whole wide  
12 range, in fact.

13 And what we found is that we're  
14 basically dealing with seven contaminants that we  
15 are concerned about, and they include both  
16 volatile organics and radionuclides. The  
17 volatile organics are TCE, dichloroethene and  
18 tetrachloroethene. The radionuclides include  
19 strontium-90, uranium-234, cesium-137 and  
20 tritium.

21 During one of the sampling events, we  
22 also identified another radionuclide, and that  
23 was americium-241 in the injection well itself,  
24 but we only found it one time. With the  
25 operation of the interim action, as Dan

1 mentioned, we found some other contaminants, and  
2 probably the most notable is dichloropropane.  
3 Again, it's a chlorinated volatile organic  
4 compound.

5 Okay. So basically what I'm trying to  
6 say, with the additional types of constituents  
7 that we're finding, we've got a dynamic system  
8 and we need to keep an eye on it as we continue  
9 with the interim action and as we get into the  
10 remedial action phase for the Operable Unit 7B.

11 As Dan mentioned, the most widespread  
12 contaminant is TCE. The plume extends from the  
13 Technical Support Facility, about a mile and a  
14 half down the groundwater gradient to the Water  
15 Reactor Research Test Facility here. It's about  
16 a half mile wide.

17 All of the other contaminants of  
18 concern are less widely distributed. And  
19 specifically, they would -- they have only  
20 extended a quarter to about a half a mile from  
21 the injection well itself, so we use the TCE as  
22 our base line plume for evaluating the site.

23 That basically shows you the  
24 horizontal extent of contamination, but one of  
25 the other questions that was important to address

1 was the vertical extent of contamination at TAN.  
2 The system of subsurface at TAN consists of  
3 basalt flows, numerous basalt flows that are  
4 typically fractured, with sediments that have  
5 been weighed down, we call these sedimentary  
6 interbeds, here and here.

7 The aquifer starts at about 200 feet  
8 below the land surface, and with the information  
9 that we have in hand, the effective part of the  
10 aquifer goes down to eight or 900 feet. So we  
11 have an effective thickness of about seven or 800  
12 feet of aquifer, so it was important to determine  
13 the vertical extent of this contamination.

14 What we found as a result of the  
15 drilling and sampling program is that this  
16 interbed here, we call this the QR interbed, is  
17 composed of silts and clays and some fine sands,  
18 is 15 to 40 feet thick, and it's very  
19 continuous.

20 And this is fairly important with  
21 respect to the migration of the contaminants,  
22 because what we found with respect to groundwater  
23 quality is that the groundwater above this  
24 interbed is above drinking water standards for  
25 most of the contaminants of concern that I listed

1 earlier, I mentioned earlier. However, the water  
2 below this interbed is free of contaminants above  
3 the federal drinking water standards. We have no  
4 detection of contaminants above any of the  
5 federal drinking water standards to date.

6 The importance of this information is  
7 that, as I mentioned, the effective part of the  
8 aquifer may be upwards of seven, 800 feet thick,  
9 and yet we are dealing with what we consider to  
10 be a contaminated groundwater plume that may be  
11 only 200 to 250 feet thick. What this does is it  
12 limits substantially the amount of water that we  
13 potentially have to treat. Okay.

14 One other point I'd like to make on  
15 the nature and extent of contamination is the  
16 source itself is an injection well. What we  
17 found is that 20 years after operations at TAN  
18 stopped  
19 disposing of the contaminants to the well, we  
20 still have the highest concentration of those  
21 contaminants in the immediate vicinity of the  
22 well. As we go away from this well, we see  
23 marked decrease in the contaminant levels. Even  
24 as far as only 100 feet away from the well, we  
25 see very sharp drops in contaminant



1 concentration. What this tends to indicate is  
2 that we are probably dealing with residual  
3 undissolved contamination that's trapped in  
4 fractures and the flow tops of the rock matrix,  
5 okay, which is continuing to feed the contaminant  
6 plume itself. This also with, in addition to the  
7 limited extent, the volume, this has important  
8 implications with respect to the types of  
9 technologies we're going to take a look at.

10 With the nature and extent fairly well  
11 defined, what we did next is take a look at the  
12 risks posed by those contaminants. We basically  
13 took a look at three different scenarios.

14 The first was what we call a current  
15 industrial use scenario, where workers and  
16 visitors are using water from the current  
17 production well at TAN, they're located right  
18 here at the northern edge of the plume, from the  
19 present to about the year 2040.

20 We also took a look at two future  
21 residential use scenarios, one where a future  
22 resident can use contaminated water from anywhere  
23 within the general groundwater plume, and then  
24 the second future residential use scenario, we  
25 isolated specifically on the use of water from

1 the injection well itself. We wanted to evaluate  
2 the two of them.

3 In all three cases, we evaluated  
4 various exposure pathways, how those contaminants  
5 are taken into the body. We evaluated the  
6 inhalation of the volatiles, for example while  
7 showering. We also evaluated the ingestion or  
8 drinking of that groundwater. And then for the  
9 future resident we included the ingestion of food  
10 crops that may be irrigated with contaminated  
11 water. Okay.

12 And what we found with respect to risk  
13 is that under the current industrial use scenario  
14 the total cancer risk to the workers and visitors  
15 equated to one additional incidence of cancer in  
16 about one million individuals. Okay. So using  
17 the definitions that Nolan presented earlier,  
18 we're below the acceptable risk range. We don't  
19 have a risk that we know of to the current  
20 worker.

21 The noncarcinogenic hazard index  
22 calculated at .003, so it's very, very low for  
23 that aspect, meaning it's unlikely that those  
24 sensitive populations, young children, older  
25 people, would be affected by any of the

1     contaminants.

2             For the future residential use  
3     scenario, where water is taken from anywhere  
4     within the general groundwater plume, what we  
5     found is that the total cancer risk equated to  
6     three additional incidents of cancer per 100,000  
7     individuals. We're still within the acceptable  
8     range defined by the EPA.

9             The calculated hazard index fell at  
10    about .8, again indicating that we're probably  
11    not going to adversely affect those sensitive  
12    populations.

13            On the other hand, when we take a look  
14    at the use of the water from the injection well  
15    itself what we found is that the total cancer  
16    risk equated to three -- two additional incidents  
17    of cancer per 1,000 individuals. Okay. So we're  
18    above the acceptable range as defined by the  
19    EPA. And the noncarcinogenic hazard index was  
20    calculated at 23, okay, so that the use of the  
21    water from the injection well itself if it is not  
22    remediated or cleaned up provides or poses an  
23    unacceptable risk in the agency's mind.

24            Okay. Well, knowing that we have a  
25    risk that we need to evaluate and take care of,

1 the next step in the Remedial  
2 Investigation/Feasibility Study process is to  
3 generate a feasibility study. And the purpose of  
4 the feasibility study is essentially threefold,  
5 or there's three stages to it.

6 You want to identify the range of  
7 technologies that are available and potentially  
8 viable for that site. In this case we're dealing  
9 with groundwater, so we looked at groundwater  
10 technology.

11 Secondly, you take that whole range of  
12 technologies and you screen them according to  
13 criteria set forth by the EPA. And what that  
14 screening does is allows you to narrow the list  
15 of your alternatives down to let's say a handful  
16 that you can then put to a very detailed  
17 analysis, basically under a microscope, so that  
18 you can get to a preferred alternative that has  
19 potential application at the site.

20 You can look at the technologies for  
21 groundwater in six general categories that we  
22 call general response actions. Each of these  
23 categories except the No Action category here,  
24 there were typically several to quite a few  
25 different technologies that may be applicable.

1           For example, institutional controls  
2 include things such as alternative water supply,  
3 deed restrictions, fencing, things of that  
4 nature.

5           Containment technologies include  
6 things such as physical barriers, grout curtains  
7 for example, sheet piling. There's also  
8 hydraulic containment technologies where  
9 basically you just circulate that contaminated  
10 groundwater to prevent or minimize future  
11 migration.

12           Under the collection and removal of  
13 contaminants for groundwater technology, the most  
14 widely used are extraction wells, where we pull  
15 the contaminated groundwater out of the aquifer,  
16 we treat it, and then we reinject it with the  
17 injection wells or we put it in a pond and  
18 dispose of it.

19           Aboveground treatment technologies or  
20 treatment response actions are typically  
21 associated with the treatment of the waste  
22 itself, of the contaminated media itself. We  
23 could be dealing with things like air stripping,  
24 carbon adsorption, UV oxidation, ion exchange,  
25 things of that nature.

1           And then treatment in place, probably  
2 the most common technologies associated with this  
3 are bioremediation technologies.

4           Basically, that just gave you some  
5 examples of those types of technologies that we  
6 took a look at for whether they can be  
7 implemented and are they cost-effective and, you  
8 know, are they going to be effective.

9           We took the whole range of  
10 technologies, then we screened them against  
11 various criteria, as I said, that are set forth  
12 by the EPA.

13           Some of these criteria include: Does  
14 a given technology protect human health and the  
15 environment? Does it comply with the federal and  
16 state laws that are out there? Is it effective  
17 both in the short-term and long-term? How easy  
18 is it to implement? Some of them are more  
19 difficult than others. Does it reduce  
20 contamination, that could be toxicity or volume,  
21 or does it reduce the mobility of those  
22 contaminants?

23           We also look at cost. Two other  
24 criteria that we also screen the technologies or  
25 remedial alternatives are through public and

1 state acceptance. That's why we are here  
2 tonight, to get your opinion on the  
3 technologies.

4 After we took the range of  
5 technologies and screened them, we basically came  
6 down to four remedial alternatives that we  
7 considered viable, and from that we selected a  
8 preferred alternative. And Dan will now give you  
9 the specifics on those four alternatives.

10 Thank you.

11 MR. HARELSON: As Greg said, we went  
12 through four or identified four alternatives that  
13 are presented in the proposed plan.

14 The first alternative is No Action.  
15 And just as the name says, we would not be doing  
16 anything to try to clean up or contain the  
17 contamination. The only thing that would be done  
18 would be monitoring to keep track of the way the  
19 contaminant plume changed.

20 Under the Superfund law, this  
21 alternative must be evaluated to provide a base  
22 line that everything else can be compared  
23 against.

24 The second alternative that we looked  
25 at was Limited Action. And this would involve

1 limiting people's access to that contaminated  
2 water. And this could either be done through  
3 physical means such as fences, or signs saying  
4 "please don't put your well here," or it could  
5 be done through administrative means such as deed  
6 restrictions that said if you ever bought this  
7 property you could not install a well into the  
8 contaminated groundwater. It could also be  
9 accomplished by installing a well to provide  
10 alternative water well away from the contaminated  
11 groundwater.

12 And again we would be monitoring the  
13 change in the contaminant plume over time.

14 AUDIENCE MEMBER: Question?

15 MR. HARELSON: Sure.

16 AUDIENCE MEMBER: On the figures at  
17 the bottom, is that yearly, an annual cost, or --

18 MR. HARELSON: No, it would be  
19 amortized over 50 years, I believe, up to 2040.

20 AUDIENCE MEMBER: So that would be the  
21 total cost over the life of the project --

22 MR. HARELSON: Right.

23 AUDIENCE MEMBER: -- yeah, over 50  
24 years?

25 MR. HARELSON: Alternatives 3 and 4



1 are very similar.

2 Alternative 3 is our preferred  
3 alternative. It would involve three main  
4 pieces.

5 The first piece would be continuation  
6 of this interim action that we've spoken about.

7 The second piece would be an attempt  
8 to remediate that hotspot, is what we call it, in  
9 the immediate vicinity of the injection well,  
10 where we think there is still this residual  
11 undissolved contamination.

12 And then the third piece would be  
13 extraction of a portion of the contaminated  
14 groundwater plume where we have dissolved  
15 contaminants.

16 The interim action would be continued  
17 for two years, and during that period we would be  
18 designing and constructing this enhanced  
19 remediation facility for the hotspot.

20 The continuation of the interim action  
21 would allow us to keep removing contamination  
22 while we're designing and constructing the second  
23 phase. It would also provide some limited  
24 measure of hydraulic containment. By sucking  
25 contaminated water back out of the injection

1 well, it would keep it from spreading as quickly  
2 as it is.

3 The second piece would use what's  
4 called an enhanced remediation technology. We  
5 are looking at surfactant-enhanced and  
6 steam-enhanced technologies.

7 What a surfactant-enhanced  
8 technology uses is a surfactant, or basically a  
9 soap that would be injected around the injection  
10 well and then pulled back out. The soap or  
11 surfactant would improve the removal of  
12 contaminant. The contaminated water would then  
13 be treated, and then water that would meet  
14 drinking water standards would be reinjected.

15 Steam-enhanced remediation would  
16 involve the same kind of process except  
17 high-pressure steam would be injected and the  
18 steam would help strip the contaminants away from  
19 the aquifer.

20 The third piece of the preferred  
21 alternative would involve remediation of the  
22 portion of the plume that is contaminated above  
23 5,000 parts per billion of trichloroethylene.  
24 And that is a fairly small piece of this  
25 contaminant plume.

1           Alternative 4 is identical to  
2 Alternative 3, except for the third piece, which  
3 would attempt to address this much larger portion  
4 of the contamination.

5           With Alternative 4, in theory, if this  
6 portion of the plume were remediated, the entire  
7 contaminant plume would be below federal drinking  
8 water standards by the year 2040, which is  
9 projected when the area would be available for  
10 other uses outside of DOE.

11           We would be on Alternative 3 operating  
12 for five to eight years. We would be looking to  
13 ten to 40 years on Alternative 4. There's quite  
14 a cost differential there.

15           Alternative 3 is our preferred  
16 alternative, even though it does not address the  
17 entire contaminant plume.

18           Alternative 3 focuses on the source.  
19 The remainder of the plume would be addressed  
20 under the WAG-wide and an INEL-wide comprehensive  
21 RI/FS. By focusing on the source, we are  
22 directing our resources at the worst part of the  
23 problem. We will be learning about the best way  
24 to approach this problem.

25           By deferring the cleanup of this wider

1     portion of the plume to these subsequent  
2     investigations, we hope to take these lessons and  
3     reduce overall costs and still reduce  
4     contamination.

5             So with that, I'll turn it over to  
6     Nolan.

7             MR. JENSEN:  Thanks, Dan.  That  
8     concludes the formal presentation part, but we'll  
9     go into a question-and-answer part now and we  
10    will have Dan and Greg come back up here and  
11    answer any questions that you have.

12            Just ask you, out of experience that  
13    we've had, if you have comments, save those for  
14    the comment part and keep the question and answer  
15    period right now and when we -- what happens is  
16    after we get comments and we go to the Record of  
17    Decision, there will be a written response to  
18    each of those comments.  And so we like to make  
19    sure we keep those comments as pure as we can so  
20    that we respond to them appropriately.  But keep  
21    it informal if we can and go ahead and ask any  
22    questions you've got.

23            AUDIENCE MEMBER:  Well, couple of  
24    questions.

25            One, early on you had mentioned

1 50-gallon-per-minute pump-and-treat target rate.  
2 You're saying now that what you're doing is more  
3 of a batch type of --

4 MR. HARELSON: That's correct.

5 AUDIENCE MEMBER: Okay. What does  
6 that work out to? I mean, how close is that to  
7 your 50-gallon-per-minute --

8 MR. HARELSON: What has happened is we  
9 designed -- we took some sample from the  
10 injection well and found a set of conditions, a  
11 contaminant level, so we designed our treatment  
12 plan to handle those conditions. We've been  
13 finding contaminant levels that are 30 times  
14 higher than what we anticipated. We are finding  
15 new contaminants that we hadn't seen. And we  
16 believe that the reason we're seeing these new  
17 contaminants and higher levels is we never really  
18 pumped that injection well as hard as we've been  
19 pumping it.

20 I think in terms of pounds of  
21 contaminants removed, we are probably doing  
22 better than if we had been pumping at 50 gallons  
23 a minute at the concentrations we anticipated.  
24 So in terms of pounds of contaminants removed, I  
25 think we've been very successful. We haven't

1     been, you know, pumping at gallons per minute  
2     that we planned on, but we have, as I said  
3     removed, over 3,000 pounds of organic  
4     contamination.

5             MR. STORMBERG:   Just to interject, we  
6     are approaching the rate that we projected for  
7     the interim action.  We're in the 40 to 50 range,  
8     but it's not continuous.

9             AUDIENCE MEMBER:  Now I have a  
10    follow-up question to that.

11            Should the preferred alternative be  
12    put into place, would that continue to be a batch  
13    type process or are you looking at a continuous  
14    flow of --

15            MR. HARELSON:  It would, I think, be  
16    continuous, yes.  You know, part of this -- my  
17    training is in engineering, and the engineering  
18    of this stuff is easy.  You have to know what you  
19    got coming in and what -- you know, you can  
20    design something to send out what you want.  What  
21    the hard part is, is we are not sure what we're  
22    going to have coming in.  And that's what we've  
23    learned on this interim action.

24            You know, the engineering was easy to  
25    design a plan for the concentrations we expected,

1 but now we're getting concentrations that are  
2 much higher. And I don't see that changing with  
3 the preferred alternative. I think we're going  
4 to get surprises.

5 MR. JENSEN: But in general right now  
6 you're working in batch mode until things  
7 stabilize, and then you hope to go continuous; is  
8 that right?

9 MR. HARELSON: Yes, that's right. We  
10 have had initial batches that came in at very  
11 high levels, and those levels have kind of  
12 dropped off. And we are very hopeful that in the  
13 next very near future we'll be able to go to this  
14 continuous operation. But we had some initial  
15 very big slugs of contamination. The levels have  
16 dropped off, and we're to the point where we're  
17 very hopeful that we'll be able to go continuous  
18 very soon.

19 AUDIENCE MEMBER: Now, would the  
20 surfactants and steam tend to cause another one  
21 of these kind of a big bump of contaminants?

22 MR. HARELSON: Potentially -- well, I  
23 think that's the desired effect. Yeah,  
24 potentially they would. Greg can maybe talk to  
25 this better than I, but I think initially not

1     only in the enhanced pump-and-treat, but in  
2     standard pump-and-treat, you start with high  
3     levels of contamination and as you work they tail  
4     off.

5             MR. STORMBERG:   The difference between  
6     the conventional and the enhanced that we're  
7     proposing, as you might or might not know, under  
8     conventional technologies, all you can do is pull  
9     water out that has the dissolved contamination.  
10    Okay.  In the case of the injection well, we have  
11    some suspended particulate type matter that also  
12    has some contamination with it, which is causing  
13    fairly large peaks in our concentrations.

14            With the enhanced alternative or  
15    enhanced technologies, the purpose of that  
16    enhancement is to increase that solubility to get  
17    more of the contaminants to come out of that  
18    undissolved residual phase into the dissolved  
19    phase, and then we pull it out.

20            Basically we're trying to circumvent  
21    the chemistry and boost up the solubility of the  
22    contaminants.  So I think that the system would  
23    be designed inherently to deal with high  
24    concentrations, much higher than we anticipated  
25    in the interim action.



1           AUDIENCE MEMBER: I would assume also  
2 a somewhat different nature of contaminant;  
3 right? Some of the contaminants would be  
4 naturally in the water rather than -- would be  
5 pretty easy to pull out of the water, wouldn't  
6 they?

7           MR. STORMBERG: Some are -- some sorb  
8 to the rock matrix more than others, yes,  
9 hopefully it will enhance both.

10          AUDIENCE MEMBER: So are you saying  
11 some are attached to the rocks, they've adhered  
12 to the rocks?

13          MR. STORMBERG: More so than -- for  
14 example, the volatile organics are fairly soluble  
15 in relation to some of the radionuclides. The  
16 radionuclides such as cesium tend to have high  
17 sorption capacity.

18          AUDIENCE MEMBER: Can you put that  
19 chart back up that has the underground sort of...

20          MR. HARELSON: The cross-section?

21          AUDIENCE MEMBER: Please.

22          Now, this injection well at its -- can  
23 you explain to me why there's a variant of 200 to  
24 400 feet, or what is the -- when this thing tails  
25 out, at what level does it tail out?

1           MR. HARELSON: The injection well is  
2 drilled down to, I think, 305 feet. This --  
3 yeah, roughly here. The interbed here is at  
4 about 400 or 420 feet below the surface. The  
5 water table is about 200 feet below the surface.  
6 We put wells, sampled above and below. Above the  
7 interbed it was contaminated, below it was clean.

8           AUDIENCE MEMBER: So if the water  
9 level today is at 200 and you're finding high  
10 contamination at the 200-foot level because it's  
11 within that aqueous environ, what if between 1952  
12 and 1971 this -- when the injection process, what  
13 if the aquifer were higher and there is  
14 contamination above the present water table?

15           MR. HARELSON: That's a very good  
16 question.

17           Greg?

18           MR. STORMBERG: He passes the hard  
19 ones on to me.

20           It has dropped over the course of the  
21 last ten years, I think on average three or four  
22 feet it's dropped. Okay. With the tools that we  
23 have now to analyze for some of the constituents,  
24 sometimes we can see that. Okay. We can tell  
25 whether that has happened.

1           We do not see that with the  
2 radionuclides, for example. We do logging on  
3 these wells and we would be able to see in the  
4 vicinity or just above the injection well if  
5 there were say a spike of cesium. I can't answer  
6 that for the volatile organics. It is possible,  
7 as Dan mentioned.

8           MR. HARELSON: On these remediation  
9 technologies, I think the steam enhancement could  
10 be designed to try to address that, so that you  
11 could clean up above the water table. You know,  
12 you would inject your steam and then collect it,  
13 and you could put your collection up here so that  
14 you could pass that steam through the portion  
15 that doesn't necessarily have water in it now.

16           I'm not sure on the surfactant. Can  
17 you do that?

18           MR. STORMBERG: No. The steam would  
19 cause more of a volatilization if there were  
20 contaminants.

21           AUDIENCE MEMBER: Is there a plan to  
22 look at that now or attempt to do that?

23           MR. STORMBERG: No, there is not.

24           AUDIENCE MEMBER: Because if the water  
25 table goes back up, aren't you going to have the

1 same problem?

2 MR. STORMBERG: If there is residual  
3 contamination left. If it's just the volatile  
4 by-product, probably not. As Margie English  
5 mentioned, this is a very complex system. As you  
6 might know, there is undissolved residual  
7 contamination. There are quite a few similar  
8 sites across the nation with this same problem,  
9 and that's why we are proposing these innovative  
10 technologies here rather than conventional  
11 technologies, because conventional pump-and-treat  
12 has a very, very difficult time of success to the  
13 scale that is necessary.

14 AUDIENCE MEMBER: I have some concern  
15 about the surfactant, because although I  
16 understand the purpose of it, how can you be sure  
17 that you're going to pump all of it out? And  
18 what kind of a life span does surfactant have in  
19 the groundwater?

20 MR. HARELSON: That is also a concern  
21 of ours. We would need to select a surfactant  
22 that is nontoxic and biodegradable, so that  
23 aspect of it would be looked at very carefully.  
24 And that is a very legitimate concern.

25 MR. STORMBERG: They do make

1       surfactants that are biodegradable.

2               MR. JENSEN:   Soap.

3               MR. STORMBERG:   Yes, basically.

4               AUDIENCE MEMBER:   I'm not sure that  
5       this is quite the place to ask this, but one  
6       concern that I've had for some time is at what  
7       point in the process the cost part of it is  
8       factored in.

9               It's always been kind of my hopes that  
10       the science would come first, and then once  
11       having looked at that then say, okay, now what is  
12       this going to cost, rather than saying, well, you  
13       know, factoring it in all the way down the line.

14               Certainly, you know, the Alternative 4  
15       looked to be two to three times the amount of the  
16       preferred alternative.

17               I guess my question would be, were  
18       these evaluated first as far as effectiveness and  
19       then have the dollar figures attached, or was the  
20       preferred -- is the preferred alternative, you  
21       know, basically a combination of the two?

22               MR. HARELSON:   They were evaluated --  
23       cost is a factor.   There are a hierarchy of --  
24       this standard EPA methodology for evaluating  
25       things has a hierarchy of what you look at most

1     importantly. And they have the -- what they call  
2     threshold criteria, which are protect human  
3     health and the environment and comply with ARARs,  
4     which are regulations, laws and regulations.

5             Those are looked at first. These  
6     others are looked at on an equal footing. With  
7     Alternative 3, we're not saying walk away from  
8     the rest of the plume because it costs too much.  
9     What we're saying is, let's try to remediate the  
10    worst part of the plume, see what we can learn,  
11    and then address the rest of the plume in the  
12    subsequent investigations when we'll understand  
13    the problem better and can perhaps approach it  
14    more cost-effectively.

15            AUDIENCE MEMBER: Obviously the goal  
16    is to clean this place up, but the problem is, if  
17    you've got a real bad problem in the area of the  
18    injection well, and you don't know where the  
19    water table was before, I mean, it's good to  
20    clean it up, I see that, but to spend \$25 million  
21    when you don't know if you're even going to make  
22    a dent if the water table comes back up, I  
23    mean...

24            MR. HARELSON: That's a lot of money.

25            AUDIENCE MEMBER: That's a lot of

1 money.

2 MR. STORMBERG: The water table has  
3 not dropped I think as significantly as the  
4 comments implied. It has dropped three or four  
5 -- three to five feet in the 50 years. We have  
6 fairly good records in that respect.

7 AUDIENCE MEMBER: Okay.

8 MR. HARELSON: Is that trend going  
9 to --

10 MR. STORMBERG: I don't know about the  
11 trend, but we know we have at least 250 feet of  
12 contaminated soil; so we're looking at a  
13 relatively -- I mean, your question has come up  
14 before, very definitely.

15 AUDIENCE MEMBER: Well almost the  
16 inverse of that, but at the rate we seem to be  
17 sucking on that aquifer down at this end, looks  
18 like as you draw more and more from one end the  
19 rate of dispersion might come even faster. I  
20 presume that the network of monitoring wells is  
21 looking at that.

22 MR. STORMBERG: Yes, it is. The water  
23 table at TAN is fairly flat, meaning that it only  
24 -- the water only moves about a half a foot per  
25 day, which is relative slow for the Snake River

1 Plain. And as you just mentioned, the monitoring  
2 network is designed to monitor the continued  
3 migration dispersion of the contaminants.

4 AUDIENCE MEMBER: Kind of along those  
5 lines, the treated water would be reinjected?

6 MR. HARELSON: (Nodding  
7 affirmatively.)

8 AUDIENCE MEMBER: At the same site?

9 MR. HARELSON: It would be in the --  
10 nearby, not in the plume. We would try to locate  
11 the reinjection points to facilitate our  
12 remediation. It might be possible to locate  
13 these reinjection points so that it actually  
14 pushes the contaminated groundwater towards our  
15 extraction wells. The water that would be  
16 reinjected would need to be treated to meet the  
17 federal drinking water standards, so it would be  
18 water that is clean enough to drink right out of  
19 the pipe.

20 AUDIENCE MEMBER: So, assuming that  
21 the water going back in is clean and all of that,  
22 there would be little net loss of water in the  
23 aquifer then as a result of these?

24 MR. HARELSON: That's right.

25 MR. STORMBERG: Right.



1           AUDIENCE MEMBER: The air stripping, I  
2 would assume that, you know, now, that's for the  
3 volatile organics. Right?

4           MR. HARELSON: Right.

5           AUDIENCE MEMBER: Now, is there much  
6 evaporation as part of that?

7           MR. HARELSON: Of the water?

8           AUDIENCE MEMBER: Yeah.

9           MR. HARELSON: It would be  
10 incidental. There would not be a lot of loss.  
11 In terms of the air stripping, we are trying to  
12 approach the design of the treatment processes in  
13 a little bit different way than we have on other  
14 projects. On other projects, we have kind of  
15 come in and said, this is what we want to do and  
16 this is how we want you to do it. That's what  
17 we've told the subcontractors that we've hired.

18           One of the things that I've learned  
19 from the injection well interim action, you know,  
20 we wrote a Record of Decision on the injection  
21 well interim action and we said, this is what  
22 we're going to do, and we told our subcontractor,  
23 this is how we want you to do it, we want to use  
24 air stripping, we want you to use ion exchange.

25           The subcontractors have come back and

1     said, you know, this is a better way to do it and  
2     we would have done it this way, except we had to  
3     do it, because that's what was said in the ROD.

4             So we are trying to write the ROD in a  
5     little bit more flexible manner, so that the  
6     people that are the real experts on the cleanup  
7     technologies that are out there available across  
8     the country can come back to us and say, you  
9     know, you told us what you wanted, this is how we  
10    would do it.

11            And then between me and the State and  
12    EPA, we can look at it and say, yeah, that seems  
13    like a good approach, it's going to -- has the  
14    best chance of accomplishing what we want to  
15    accomplish, it's not going to make the problem  
16    worse, it's not going to pollute the air.

17            So air stripping is a possible  
18    technology, but we're also open to considering  
19    other technologies.

20            MR. JENSEN: Any other questions?

21            AUDIENCE MEMBER: I have one.

22            At the various levels of testing that  
23    you do, do you find that certain of these problem  
24    chemicals travel up better or more -- in greater  
25    numbers, or certain sink, some are heavier, some

1 are lighter?

2 MR. HARELSON: Yes. The  
3 trichloroethylene, the TCE, which is the  
4 widespread contaminant, is much denser than  
5 water. And we're not sure if there is a separate  
6 phase, like there's salad dressing that separates  
7 out, or whether there's simply, you know, this  
8 residual sludge, you know, the sanitary sewage  
9 waste from down there. There may be just organic  
10 matter that has a lot of this TCE tied up in it,  
11 but there is density differences, and there is  
12 potential stratification based on density.

13 MR. JENSEN: Any other questions?

14 By the way, what we'll do is when  
15 you're done with questions, we will do the  
16 comment period, and then Dan and Greg will be  
17 around and you can talk to them one-on-one later  
18 tonight if you'd like, but we welcome any  
19 questions you have now while we're here.

20 Okay. Let's go ahead and go into the  
21 formal comment period then.

22 During the comment period part now,  
23 this is the time for you to give your comments,  
24 state your concerns, speak your peace, and we  
25 won't respond to those. We'll just let you say

1     what you'd like to say.

2                 So if you would, if you have a comment  
3     to give, would you please give your name first,  
4     and speak loudly so the court reporter can hear  
5     you, and we will just let you give you comments.

6                 Is there anybody -- I don't think  
7     anyone signed up at the back to give a comment,  
8     so we will just open it up if anybody wants to  
9     give one. We may ask you for a clarification to  
10    clarify that, if we think there is something we  
11    might not understand. In general, it's your time  
12    if you'd like to take it.

13                Anybody?

14                Going once, going twice. Okay. And  
15    by the way --

16                AUDIENCE MEMBER: I do have a quick  
17    question. What is the deadline for written  
18    comment?

19                MR. JENSEN: I was just going to cover  
20    that.

21                Let's go ahead and close the comment  
22    period, but at the back of the proposed plan  
23    there is an addressed, postage-paid sheet. And  
24    the comment period goes through June 17. So  
25    anytime between now and, what, about a week from

1 Monday, something like that, you can submit a  
2 written comment and attach to that, or whatever  
3 you need to do.

4 AUDIENCE MEMBER: And I may need to  
5 ask Rick about this. The other information that  
6 we might need to comment on this is at your  
7 offices?

8 MR. TROMBLAY: Yes, that's right.

9 MR. JENSEN: Also, by the way, right  
10 inside the proposed plan there are addresses for  
11 where the information is, like in Boise, again,  
12 that's Rick's office's address there.

13 If you need to call for information,  
14 there are phone numbers for -- this is the DOE  
15 office, in fact, Reuel Smith's number is here at  
16 the bottom. The EPA office number, address is  
17 here, and the State office here in Boise is in  
18 there as well. So if you need information from  
19 any of us, you can feel free to call. Okay?

20 All right. Let's take about a  
21 ten-minute break and we'll let the other part,  
22 our presenter, get set up. The second half is a  
23 lot shorter than the first half, if you care, and  
24 we will talk about the Track 1s in about ten  
25 minutes.

1                   (Recess.)

2                   MR. JENSEN: The second part of the  
3 presentation, even though it's part of the same  
4 proposed plan, it's kind of a different subject.  
5 And that is, when we first signed the Federal  
6 Facility Agreement with INEL, there were about  
7 four sites that we knew about that needed to be  
8 looked at.

9                   Some of those are very obviously  
10 problems, like the groundwater we talked about  
11 and the injection well.

12                  There were several other sites,  
13 however, that were very small. Maybe somebody  
14 heard about an acid spill or an oil spill or a  
15 gasoline spill, or several things like that. And  
16 we hadn't done a lot of investigation on those,  
17 so what we did under the Federal Facility  
18 Agreement is we set up a system whereby we could  
19 screen to see if there was an issue there that  
20 needed to be looked at further, whether it was  
21 something we could clean up real quickly or  
22 whether there was nothing there at all.

23                  So what we did is set up a couple of  
24 investigation processes. We call them Track 1  
25 and Track 2, just kind of made-up terms. And

1     what they in general are, are for sites that are  
2     fairly small. And for a Track 1, generally the  
3     approach is that we know about the site, but  
4     there is information that we have, and we just go  
5     in and evaluate the existing information. There  
6     may have been some sampling data already in the  
7     files, or we may even collect a couple of  
8     samples. But in general, this is more of an  
9     evaluation based on what we know about the site  
10    already.

11           A Track 2 is more intense. We  
12    actually generally go out and take a few samples  
13    there and do a risk evaluation based on that.

14           The outcomes of those are, first of  
15    all, if we don't find anything, we make an  
16    initial determination that there's no more action  
17    needed.

18           If we find out that there is a  
19    definite issue, it's something we can run out and  
20    grab quick, like, for example if there was an oil  
21    spill or solvent spill, and it's a fairly  
22    confined area, there's stained ground there, we  
23    can see it, we can go out and grab it.

24           On the other hand, if we find out that  
25    there is contamination there that needs to be

1 investigated further, then we forward the site to  
2 our Remedial Investigation/Feasibility Study.

3 So that is kind of the general  
4 approach we set up.

5 Tonight what we're going to be talking  
6 about are several sites that were the Track 1  
7 type, and sites that essentially we made an  
8 initial determination no further action was  
9 necessary.

10 And as we do that, that is a  
11 preliminary determination, and now we're taking  
12 that and bringing it for public comment. And we  
13 will formalize that initial determination in the  
14 Record of Decision.

15 And I think this is the second project  
16 we have done that on. The one a couple months  
17 ago for Naval Reactors Facilities had some  
18 preliminary investigations that we were  
19 formalizing there as well.

20 But anyway, I'll go ahead, our  
21 presenter tonight is T. J. Meyer from EG&G, and  
22 I'll introduce him now and he will give the  
23 presentation on the Track 1s.

24 MR. MEYER: Thank you. Today I'm  
25 going to be presenting 31 Track 1 investigations



1 which were outlined in the proposed plan, and  
2 then present the agency's recommendations for  
3 these 31 Track 1 investigations.

4 As Nolan said, Track 1 is a  
5 preliminary investigation. And one way to look  
6 at it is that, when you have a lot of existing  
7 information on a site, we try to pull all that  
8 information together to see if we can come to an  
9 earlier decision of what to do: No further  
10 action, removal action, or go out and do further  
11 investigation. And in this way, we saved a lot  
12 of money and we streamlined the investigation on  
13 these sites.

14 Tonight I'll be talking about 31  
15 sites. There a total of 40 Track 1  
16 investigations at TAN. The remaining nine need  
17 further investigation, so we will be presenting  
18 them at a later time.

19 The 31 investigations we will be  
20 talking about today can be categorized as 18  
21 abandoned and removed or inactive -- they're  
22 either removed or they're inactive underground  
23 storage tank sites. There's ten potentially  
24 contaminated sites. And I say "potentially  
25 contaminated," because the initial information

1     that we had was that there was some debris on the  
2     ground, and it wasn't very well characterized,  
3     and so it looked like there was something there,  
4     but also looked like we had enough information to  
5     go out and make an assessment. So they were  
6     considered to be potentially contaminated.

7             There are three waste disposal sites  
8     also.

9             Each one of these sites had Track 1  
10    investigation done, where all the historical  
11    information was gathered. And that information  
12    consisted of engineering drawings and process  
13    knowledge of how the site operated, including  
14    knowledge of what went on back in the '50s and  
15    '60s and '70s at some of these sites, and a  
16    collection of photos to try to document how the  
17    site was used and what happened at the site, to  
18    get an idea of the past condition.

19            Then each of the sites were visited,  
20    and in many cases, samples were collected to try  
21    to determine what the current conditions are at  
22    the site in terms of contamination and also with  
23    what the site looks like today.

24            Finally, a risk evaluation was done on  
25    this information, and the whole packet was put

1 together.

2           These investigations typically are  
3 anywhere from 30 to 50 pages. This is just one  
4 of the sites. We have binders with all of these  
5 packets together, if anybody is interested in  
6 looking at them, and they're all available in the  
7 Administrative Record, the public record.

8           These packets consist of a bunch of  
9 questions, tables, sampling information, and the  
10 risk assessment which was used to describe or  
11 evaluate the site. And this is the evaluation  
12 information that the agencies have reviewed to  
13 make their recommendation.

14           The locations of these 31 sites occur  
15 across the TAN complex. Each of the major  
16 facilities were discussed earlier: The  
17 Loss-of-Fluid Test Facility; the Initial Test  
18 Engine Facility, located north, the Water Reactor  
19 Test Facility, which is in the southeast; and the  
20 main facility, which is known as the Technical  
21 Support Facility.

22           Each one of these facilities has  
23 several tanks at them, and the tanks are shown in  
24 a purple or violet color at each of the  
25 facilities.

1           Only the Loss-of-Fluid Test Facility  
2           and Technical Support Facility had potentially  
3           contaminated soil sites, shown in green.

4           All three waste water sites occur at  
5           the Water Reactor Research Test Facility, and  
6           they're shown here in blue. And these wastewater  
7           sites received mainly processed water,  
8           uncontaminated processed water or sanitary water.

9           The results of the Track 1  
10          investigations showed that 23 sites had no  
11          contamination at all. Nine of the sites, as I  
12          mentioned earlier, require additional work, and  
13          we're not going to be talking about them today.

14          Of the remaining 31 sites, eight of  
15          them had contamination found at them, and those  
16          sites are listed below in this table here. The  
17          location of the facility is shown here, and each  
18          of the facilities had a contaminated site. They  
19          weren't just localized at one facility.

20          The types of sites can be really  
21          characterized mainly as tank sites, and then  
22          there was one contaminated soil site.

23          This site here where there's  
24          contaminated soil, there was an underground  
25          storage tank nearby that had overflowed and had

1       caused the problem.

2               The types of contaminants were shown  
3 here, and they're typically what you'd expect at  
4 underground storage tanks: Benzene, toluene,  
5 ethyl benzene and xylene type contaminants. And  
6 then the one contaminated site had a  
7 radionuclide.

8               The risk assessment that was done of  
9 these eight sites showed that there were only two  
10 sites that had potential carcinogens present,  
11 benzene and the cesium-137, the radionuclide.  
12 And the risk assessment for both of these showed  
13 that the contaminant levels present at those  
14 sites were below the carcinogenic risk range  
15 outlined by EPA, meaning there was acceptable  
16 risk range here.

17              The remaining risk sites are not  
18 considered carcinogens and the risk assessment  
19 showed that the hazard index for the ethyl  
20 benzene, the toluene and the xylene were below  
21 the noncarcinogenic hazard index level,  
22 indicating that sensitive populations were likely  
23 not to be affected by the level of contaminants  
24 found there.

25              If each of you have a proposed plan, I

1 would call your attention to Table 3 on page 14.

2 And the first two columns are shaded  
3 for cesium and benzene, and they show the amount  
4 of benzene or the amount of cesium that would  
5 need to be present to create a risk above 10 to  
6 the minus 6. And each of those sites had  
7 contaminant levels below the numbers shown here.

8 The remaining three columns, the  
9 noncarcinogenic contaminants, toluene, ethyl  
10 benzene and xylene, again, you can see the  
11 contaminant levels there, and the levels we had  
12 at each of our sites were far below that, orders  
13 of magnitude below, and the levels are actually  
14 shown or described in each of the site  
15 descriptions.

16 In conclusion, the agencies are  
17 recommending no further action for each of these  
18 31 Track 1 sites, based on the fact that the 23  
19 sites from the preliminary investigations and  
20 historical records and the field sampling, no  
21 contamination was found, and for the remaining  
22 eight sites, the risk assessment showed that  
23 contaminant levels present posed an acceptable  
24 level of risk.

25 Are there any questions?

1           AUDIENCE MEMBER: Well, one question.  
2   Being as, let's assume that this gets to the  
3   Record of Decision stage and they say, okay, our  
4   decision is that there is no problem here, we're  
5   going to move on. Do these sites remain in the  
6   inventory and will they be revisited at some  
7   point just to reconfirm that decision?

8           MR. MEYER: Yes, they will be  
9   revisited. If you remember earlier when Nolan  
10   was talking about this, there is this one  
11   Operable Unit at end of the TAN investigation  
12   call Operable Unit 1-10. That's the WAG 1  
13   comprehensive RI/FS. Each of these sites will be  
14   revisited. First of all, the one question that  
15   will be asked is: Has anything new been learned  
16   that would change the earlier decision? And then  
17   they would be revisited to assess the cumulative  
18   risk of not just the one site that we've done  
19   here, but they'll see what the risk is at this  
20   site as well as other sites around to give you an  
21   idea what a receptor living there would see in  
22   terms of the cumulative aspect.

23           MR. JENSEN: This one right here would  
24   start in about a year.

25           MR. MEYER: Does that answer your

1 question?

2 AUDIENCE MEMBER: Yes, it does.

3 Then I have one other question. I  
4 understand that in the -- oh, that the  
5 reauthorization for CERCLA is going through  
6 Congress right now. They're talking about  
7 establishing some limits for radionuclides  
8 similar to what they've done with establishing  
9 limits for carcinogens. I've heard talk of 10 to  
10 the minus 4, 10 to the minus 6, various levels,  
11 to establish some kind of a cleanup or some kind  
12 of a -- put a number on all of this, so to speak,  
13 quantify it somehow.

14 Should these changes go in, does this  
15 affect any of the work that's being done right  
16 now, particularly with the cesium and some of the  
17 others?

18 MR. MEYER: I really don't know the  
19 answer.

20 Nolan?

21 MR. JENSEN: Generally what happens in  
22 a Record of Decision is when that thing is signed  
23 you freeze your requirements at that date. So  
24 essentially whatever applies at the time the  
25 Record of Decision is signed, that's what



1 applies. Now, I'm sure there are exceptions to  
2 that in some cases, as there always are, but  
3 that's generally their approach.

4 AUDIENCE MEMBER: So conceivably if  
5 the EPA does establish these levels for  
6 radionuclides, when we get to this comprehensive  
7 investigation, they might then apply those levels  
8 to the previous data?

9 MR. JENSEN: Possibility. For  
10 example, one thing we might do, if it turns out,  
11 for example, that this new law or the new  
12 reauthorization would drastically change what was  
13 done earlier, then if we decided with the EPA and  
14 State's concurrence that we wanted to do  
15 something different, that would probably be a ROD  
16 amendment and we would come back and do this same  
17 process over again. So that if we did do that,  
18 you would hear about it and get to comment on  
19 it. But I'd be pretty surprised if they changed  
20 things that drastically.

21 I think the intent is more to  
22 streamline and set some levels which, you know,  
23 they can be fairly comfortable with, and perhaps  
24 reduce some of the effort that goes into risk  
25 assessment.

1           AUDIENCE MEMBER: Well, yeah, I know  
2     some of what we've been learning is that  
3     essentially some of the ways we've been measuring  
4     just aren't working, and I got the feeling it was  
5     to make things easier on everybody to quantify  
6     some of these levels, particularly the radiation  
7     levels, but I just didn't know how this could  
8     affect what's happening here.

9           MR. JENSEN: Did you want to say  
10    anything, Jeff, in addition or --

11          MR. FROMM: Well, yeah. I thought EPA  
12    was actually thinking about something more around  
13    2, than 10 to the minus 4. I think if anything  
14    they might be a little more conservative with the  
15    risk management we're using now than what  
16    reauthorization might put into play. Based on  
17    what I've read, that might be the case. But I  
18    don't think there would be a great change either  
19    way.

20          MR. JENSEN: Just for your  
21    information, too, there is another investigation  
22    that is just getting under way. It's Operable  
23    Unit 10-06. And that one is looking specifically  
24    at rad-contaminated surface soils at the site.  
25    And one of the things we're trying to do there is

1 get a feel how the risk assessment will work and  
2 try to come up with some of our own criteria or  
3 levels that we might clean up to. But that one  
4 is still ongoing.

5 Any other questions?

6 Going to be easy on me. Okay.

7 Reuel asked me to mention, on the back  
8 of the agenda for tonight we do have an  
9 evaluation form. We know we throw an awful lot  
10 of information your way at these meetings, and  
11 we're always trying to do better, and you're the  
12 ones that can tell us where we need to improve,  
13 so, please, if you have suggestions on how to  
14 improve these meetings, write them down.

15 AUDIENCE MEMBER: Coffee.

16 MR. JENSEN: Okay. Any more questions  
17 before we start the comment period?

18 And maybe I should even ask, is anyone  
19 planning on giving a comment?

20 Then we won't even bother with that  
21 formality. One more chance. I surely don't want  
22 to stop anyone who would like to give a comment.

23 Okay. I think that concludes it then.

24 Thank you very much for coming. And  
25 again, the comment period goes to June 17, so

1     feel free to comment any time during that period,  
2     and we will see you next time.

3                 (Meeting concluded at 8:13 p.m.)  
4  
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## REPORTER'S CERTIFICATE

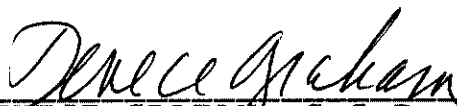
STATE OF IDAHO )  
COUNTY OF ADA ) ss.

I, DENECE GRAHAM, Certified Shorthand Reporter and Notary Public duly qualified in and for the State of Idaho do hereby certify:

That said hearing was taken down by me in shorthand at the time and place therein named and thereafter reduced to computer type, and that the foregoing transcript contains a true and correct record of the said hearing, all done to the best of my ability.

I further certify that I have no interest in the event of this action.

WITNESS my hand and seal this 8th day of July, 1994.

  
DENECE GRAHAM, C.S.R. and  
NOTARY PUBLIC in and for  
the State of Idaho.

My Commission expires April 21, 2000

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UNIQUE WORDS: 1,418  
TOTAL OCCURRENCES: 4,166  
NOISE WORDS: 385  
TOTAL WORDS IN FILE:  
11,586

## SINGLE FILE CONCORDANCE

### CASE SENSITIVE

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NOISE WORD LIST(S):  
NOISE.NOI

---  
INCLUDES ALL TEXT  
OCCURRENCES

---  
IGNORES PURE NUMBERS

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WORD RANGES @ BOTTOM  
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